# SUPPLEMENT.


# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

**FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.**

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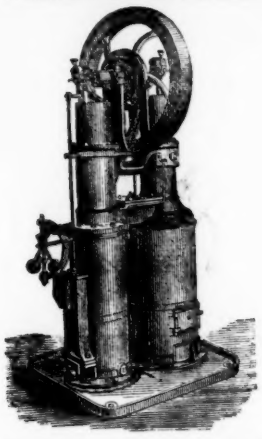

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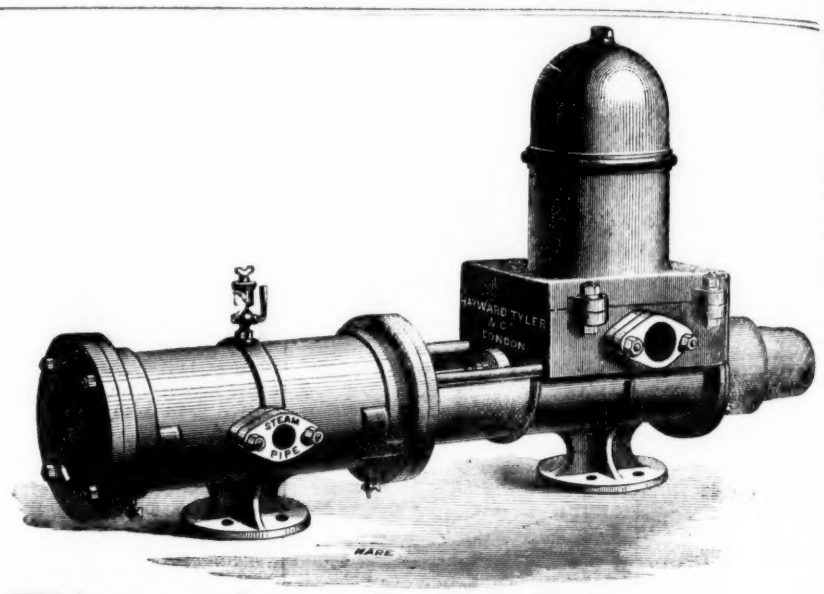


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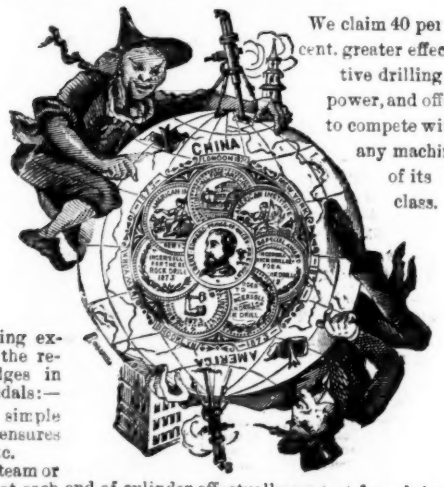


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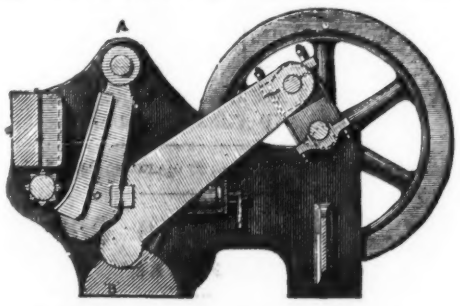


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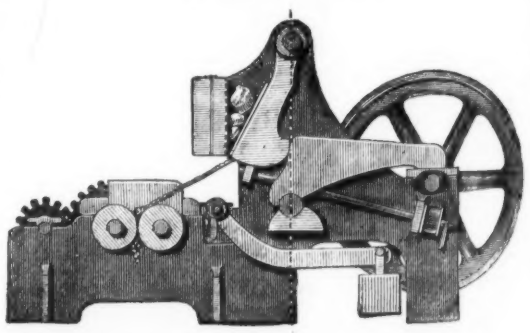

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## Original Correspondence.

### THE NEW GERMAN PATENT LAW.

SIR,—With reference to our previous letter informing your readers of the new Imperial German Patent Law, we have the pleasure of communicating the following special rules and regulations of the same:—Description and drawing are to be filed in duplicate; the measurement of the former must be 33 by 21 centimetres. The drawings are to be also in duplicate, one on thick, stiff drawing paper; the other must be on tracing cloth. Both drawings must measure 33 centimetres high by 21 centimetres, 42 centimetres or 63 centimetres wide. The chief drawing on paper is to be executed with the best black Indian ink, and no colouring, &c., may be used, indeed this drawing is to be worked up in the same style as those printed by the British and American offices. The drawing is to have one single border line drawn at 2 centimetres from the edge of the paper. The signature of the applicant has to be placed in the right hand bottom corner, and a space left free on the top for number, date, and title. The *copy* of the drawing may be coloured, and it is advisable that it should be so if this make the drawing more distinct. The drawings may be neither rolled nor folded. A scale in meter measurements is attached to the drawing. A power is necessary, but without legalisation. We beg also to inform you that we have now appointed special representatives in Berlin, Strasburg, and Vienna. WIRTH AND CO.

*Frankfort-on the-Main, June* 28.

### A TRIP ACROSS THE ANDES OF PERU TO THE MINERAL CAVES OF HUALLANCA.

SIR,—It is now close on 20 years since I first crossed the Andes of Peru On that occasion the journey was commenced at Lima, the capital, and up the River Rimac, which flows through that city. The road continues along the banks of the river, which becomes a torrent as the traveller commences to ascend the Andes, the valley narrowing into what Americans call a canyon, with high precipitous mountains on each side. The mind here has no expansion, and is, as it were, jammed up between two mighty walls of rock. The object of that journey was to report on some silver mines situated on the east flank of the Andes. However, it is not the purpose of this letter to describe that journey. After an absence of 20 years from the country, I found great changes in Lima. The streets well paved, and as good sewage as we have in London. Magnificent houses replacing the old Spanish edifices. Callao, the principal seaport, completely transformed, having a magnificent dock. Two railways connect Lima with this port at present. Mr. Henry Meiggs had completed the opposition line, so that the summit of the Andes at an elevation of 15,000 ft. is now in direct communication with the sea. This is a wonderful piece of engineering, and will place one of the most celebrated silver mining districts of the world in direct steam communication with Europe—the celebrated Cerro de Pasco, of which Alexander von Humboldt in his works speaks with enthusiasm, the quantity of silver produced was something fabulous. The district will before long be tapped by a great tunnel which has been undertaken by Mr. Henry Meiggs. A contract was celebrated not long since between all the mineowners of the district and Mr Meiggs, the Government guaranteeing its fulfilment through various steps taken for that purpose.

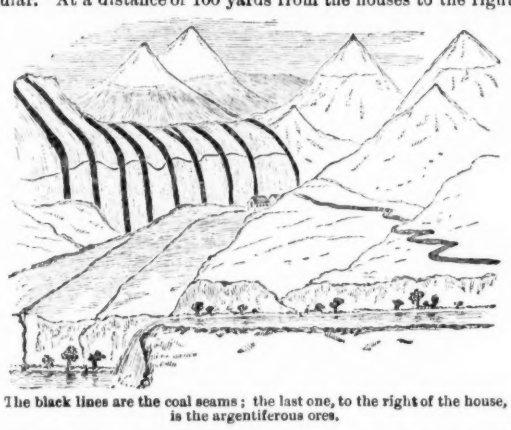
I left Lima in the month of November, 1875, and I shipped myself in one of the many steamers of the Pacific Steam Navigation Company, with a course due north, in order to land at the port of Casma, this being the starting point for crossing the cordillera to the inland town of Huaras, Province of Ancachs. This city will before many years be placed in direct steam communication with the port of Chimbote; this railway is also under contract with Mr. Henry Meiggs, and is being proceeded with gradually. We landed at the Port of Casma, and rode up the river to the small inland town of the same name, some 10 miles distant, with the object of making preparations there, and procuring mules and the necessary equipment for crossing the first or coast range as it is called. Here the night was passed. Early next morning at 5 A.M. we went to the Chinese restaurant and were served with good coffee, &c., starting at 5:30. It is curious that all over Peru we have industrious Chinamen who minister to all the wants of travellers. Nearly all these are men who have completed their four or five years' labour contract. We continued travelling till 12 o'clock, for the greater part of the time up the river of Casma, and stopped at the first village, called Juatann, at an elevation of 2700 feet. Here the only civilised beings who could supply us with food were Chinamen, and they procured us a place to sleep in. Like the River Rimac, the Casma is also encased in between high mountains, perfectly destitute of trees and vegetation; in fact, the coast of Peru and its mountains are completely barren, but we have every 60 to 100 miles streams flowing from the Andes to the coast; in fact, every now and then a transverse oasis from east to west. On these rivers we meet with magnificent sugar and cotton estates, but as we travel towards the first range these valleys narrow down to nothing, and on reaching the summit the waters divide. We rose as usual very early, as it is necessary to avoid the great heat of the sun, and rest during the middle of the day for some hours, and arrived at the village of Pariacoto at an elevation of 4700 ft. Next day it was necessary to push on and reach the only farm left on the river, and arrived at 7 P.M. at Chacchan, the elevation 7600 ft., where we were most hospitably treated by the owner, a Frenchman, who fattens cattle, these being sold for the Lima market. We rose at 4 o'clock next morning, having the hardest day's work to overcome, that of crossing the first ridge of the Andes, Sierra Negra, or snowless coast range, at an elevation of 14,700 ft. Already at 13,000 ft., we commenced feeling the effects of the rarification of the air; this is a specie of sea sickness with a disagreeable pain in the forehead. On reaching the summit, or divide, the greatest sight the mind can picture to itself is brought before the traveller. One of the most sublime panoramas the world can show presents itself across the Valley of Huaras. Below at about 5000 ft. the beautiful and cultivated Valley of Huaras is seen, with its picturesque city, numbering some 12 000 inhabitants. Above it a panaroma and ocean of snow in the distance, rising to 18,000 ft. above the level of the sea, and it is an imposing spectacle. The mind comes to a stand-still, and what the traveller does is to gaze and gaze at the mighty expanse of snow. Looking perpendicularly at the snow-clad peaks they appear like so many ladders up to heaven, and to the north and south, as far as the eyesight can reach, endless snow.

Feeling the sickness and pain in the forehead increasing we had to tear ourselves away from this grand sight. We soon commenced the descent of the 5000 feet, and reached the city of Huaras about 5 o'clock in the afternoon. It is situated between the two, or rather parallel, ranges of the Andes. The valley is not more than some five miles wide; the height of this city above the sea is 10,400 feet. In order to get accustomed to the rarified air we remained here some days, preparing thus for the greater journey across the true Andes range, which I was aware would take us to the elevation of 17,200 feet before reaching the silver mineral district of Huallanca. Here we were feasted by the hospitable people of the city of Huaras with dinners, balls, &c. In return I assisted them to erect their splendid fountain which they had received from Europe for their principal square, and got my English mason to set it up, as their native masons had never had up to that period to contend with a difficulty where ingenuity was required. We left Huaras about the beginning of December, and travelled up the river some 15 miles to the great silver-lead mining district of Recuay. This is situated 14,600 feet above the sea, and consist of numerous fissure veins in porphyry of argentiferous galenas, containing about 200 ozs. silver to the ton. There being no fuel or timber of any class at this height I recommended the concentration machinery I brought out to Peru to be placed near these mines, where there is any amount of water power, raising the galenas to 75 per cent. lead, and the silver to about 700 ozs. per ton.

On the 8th December we commenced our journey, and on that same day we came to the foot of the snowy Andes, and camped at the hut of an Indian; the elevation here was 15,200 feet. It was very cold, and with difficulty I made a fire of the only fuel to be had in this icy region called pumapampa—the dried dung of animals. I managed to make some coffee, and warm up my men, who, although half my age, were played out physically and morally. One had been a Prussian volunteer, and fought in several battles in the late Franco-Prussian war. He had been wounded, slept on the snow and every class of hardship, but the travelling in the heart of the Andes of Peru had disheartened him; it was too much for him. A soldier could not endure the class of hardship that the miner has to go through. I got up at about 1 o'clock, and to my astonishment found 6 in. of snow on the ground. I went to bed again, and rose at 5 o'clock and found some 12 in. of it. I held a council of war with the guide and muleteer, and informed them it would be a most dangerous affair to cross the heart of the Andes with a snow-storm on hand, and that I would delay the journey. He would not hear of it, and not wishing to be considered faint hearted I at last told him I would follow him on one condition—that if we were lost in the storm through his folly he would be severely punished. We commenced climbing with great difficulty, the mules slipping and snorting not finding a safe footing, the narrow mule track being covered with snow; we lost our road several times. I must say I felt scary, never expecting to get out of it safe this time. But after four hours riding the snow-storm cleared away, but then we had a new foe to face—the fearful glare of the sun on the snow. I had fortunately with me three pair of green spectacles for self and men, but the poor muleteer had none, and became blind in less than three hours; we had to leave him behind at the hut of an Indian alpaca hunter. We crossed three parallel ranges that day; one was 16,800 feet, and the others about 17,200 feet; these ranges are called Guarapasca and Chanasuya.

We commenced the descent of the eastern slope of the Andes. It was a most dangerous road all the way; slippery with the snow and mud—in fact, our mules could not walk but they slid the greater part of the road. At 8 P.M., after fording the river several times, which was accompanied with some danger on account of the excessive melting of the snow and consequent flooding, we reached the mineral caves of Huallanca; these are situated at 14,700 feet above the level of the sea. The inspection of these mines was a very trying affair, the rarification of the air causing an extraordinary increase in the pulsation of the heart, and making it dangerous to move about except with great care.

EXTRAORDINARY GEOLOGICAL FORMATION.—These silver mines are situated in the heart of a coal formation which has been upheaved by the outburst of porphyry, forming immense backbones. The stratification is standing on its beam ends, and almost perpendicular. At a distance of 100 yards from the houses to the right is



The black lines are the coal seams; the last one, to the right of the house, is the argentiferous ores.

the adit out of which the argentiferous copper ores are extracted. The class is a new tetrahedrite, containing about 800 ozs. to the ton, and about 150 yards to the left is the first coal seam from where the smith orders his coals to be extracted. The ores containing 100 to 130 ozs. to the ton are thrown over the dumps, their carriage to the coast being too expensive. I recommended the owners to collect all these poorer ores and to smelt them in a reverberatory furnace into regulus, thus raising them to about 600 ozs. to the ton. The ore is found in the shaly portion of the formation, as well as in the sandstone. In the latter it is found in a most singular condition—in huge "vughs" or caves, many of these being as much as 25 feet to 30 feet long, and about an equal size in depth. These caves are coated with from 2 inches to 3 inches of argentiferous ores, and millions of crystals of tetrahedrite are destroyed by the picks of the miners, who break down the ore in that manner. Some of these caves have produced as much as 30,000*l.* in a single day. The way they are discovered by the native miners is also singular. They follow for months a thin little cleavage of about $\frac{1}{8}$ of an inch. This contains calcedony, and they drive horizontally and at an incline of 45°, in order not to miss them. They vary in size from a few feet to that above mentioned. I have presented Professor Maskelyne, of the British Museum, with specimens of these ores, as well as coal and the fossils of the formation.

After staying at the town of Huallanca, which is some 4000 feet below the mine, on a river of that name, and a tributary of the great Maranon, we commenced our return journey to the coast. Our muleteer having recovered his sight, accompanied us. We took a different route this time, and to the port of Supe, coming down the River Pativilca, which has its source at the foot of a mountain of the same name. I calculated this mountain to be 18,000 ft. high, and with about 3000 ft. thickness of congealed snow on its peak, perfectly transparent, and like an immense field of glass. We arrived safe in Lima, from whence my business called me on to Chile.

HENRY SEWELL, M.E., F.R.G.S.

10, *Upper Westbourne-terrace, July* 1.

THE INTERNAL LOANS IN CHILE—DISCOVERY OF A NEW AND RICH SILVER DISTRICT.—The success of the municipal loan in Valparaiso, and still more that of the two millions State loan just subscribed, has so raised the enthusiasm of some of our contemporaries—notably the Ferrocarril—that they have advocated the encouragement of the investment of the national savings in the public funds, and the indefinite creation of a debt as the surest step to the progress and inculcation of economy in the people. The Government Gazette, in two remarkably well-written articles, deprecates such disastrous conclusions, and while admitting the necessity of nations, like individuals, having recourse occasionally to their credit, deplores all loans as objectionable, and as only to be contracted with the greatest care and under exceptional circumstances. It also points out that owing to the scarcity of capital in Chile, and its consequent high interest, the plan of raising internal loans not only reduces the funds available for investment in agriculture, mining, manufactures, and other industries, but necessitates a larger outlay every year for their service. The Protectionist argument of paying high for a thing because it is "national," rather than low for a foreign product, is shown to be as objectionable in a financial as in an industrial sense, and surely nothing but the blindest fanatic would advocate paying 6 and 8 per cent. for money that he could as readily obtain for 4 or 5. The duty of the State is to borrow in the cheapest market, to do otherwise is the same as if a merchant "were to buy cutlery in Lyons and silk in Sheffield."

COPIAPO (a Northern Province of Chile).—The new silver discovery, mentioned in our last, made by Don José R. Montt, and named the "Constancia," has created the greatest excitement in our mining world, and innumerable parties have set out for the locality. The ley of the ore is confidently stated to be from 1000 to 1500 marks per cajon, or at the rate of from 3000 to 5000 ozs. to the ton, and the formation stratum of limestone.—*Chilian Times.*

### RICHMOND VERSUS CHILIAN MINING.

SIR,—Several gentlemen in the City have spoken to me about a letter which appeared in the Journal headed as above. I beg to state that I am not the author of that letter, but a brother of mine, who dates it from Valparaiso, Chile. I believe it is generally well known amongst my acquaintances that I have upheld American mines, although I pointed out clearly in the pamphlet on the Emma Mine that some of our English companies in the United States had given bad results from two causes. The excessive price paid for some properties, the insufficiency of working capital of many, and the reckless and bad management of others, persons having been sent out to manage who had never seen a silver mine in their lives. I have known several of this class, and there are two cases now on the *tapis*, which, of course, like the former ones, could give but the worst results. HENRY SEWELL, M.E., F.R.G.S.

10, *Upper Westbourne-terrace, London, July* 4.

### THE EXCHEQUER MINE—VALUE OF THE ORE.

SIR,—My letter of June 20, which you did me the favour of inserting in the Journal of the 23rd, has not as yet elicited any reply from the authorities, but it has been followed up by another shareholder in strong terms (but not too strong), urging that some explanations shall be given as to the glowing statements so often and positively made by those on whom we relied. The directors, however, will not it appears enter upon this paramount question of whether we have or have not all along been deceived in the value of our ore (and it is difficult to comprehend how all concerned can have been deceived in this matter unless there be a deceiver), or whether our vaunted O'Hara furnace, reversing the action of the philospher's stone turns all our gold and silver into refuse. My question was very simple, and an answer could but have been instructive to the shareholders. I will repeat it. How many tons, and what category of ore, were treated by the old furnace in 1876 which produced the 368*l.* 5*s.* 4*d.*? If the directors have this information we should like to have it also, whilst if they have it not I think such absence of information would go far to prove that Mr. Chalmers is neglectful in supplying tangible and practical intelligence, whilst far too ready with sensational, not to say visionary, anticipations.

We might, however, have expected that the directors would in their circular calling for further funds have touched on this vital question of ore *v.* furnace, but nothing of the sort. In a circular teeming with capitals, and as roseate in its hue as if exactly similar prognostics had not been already dissipated at the very moment of apparaently achieved success, we are asked to pour in more and more money—and for what? Why apparently only to sink lower and lower in search of ore to be again described to us as of 10*l.*, 50*l.*, or 100*l.* a ton, to be subsequently resolved by our furnace, which "works to a charm" into $4 ore! Why not first ascertain if we have or have not already valuable ore accessible or even accumulated, and if we have a furnace capable of dealing with it? Why not work specimen pieces of $5000 a ton referred to by Mr. Chalmers in his very last report, or the $170 reported by Mr. Price, whose report by the way has not yet been seen.

I cannot also but think that it would be much better if Mr. Lewis Chalmers were more practical and less imaginative in his little weekly reports. In his last he says "Your riches are under your feet if mineral indications are anything better than a delusion and a snare. I have not the smallest doubt of it, and I shall maintain that under your feet you have a magnificent property, manage it how you will." He reminds me of Baba Abdallah in the Arabian Nights. He seems to have the miraculous ointment on one eye which enables him to speak so positively as to our hidden treasures far below, whilst the blindness attendant on annointing both eyes comes on when it only remained to assay and value the unearthed treasure. He forgets, moreover, many and many other similarly positive assertions which have come to nought.

I confess that I am disappointed in the line taken by the directors, and have some difficulty in adhering to my former signature. Their circular does not appear to me to go to the point. It smacks not of plain honest English. As to their French, I thought I was pretty well up in that language, but I cannot for the life of me see how our finding money here can sound the *reveille* of the Stock Exchange, whatever that may be. I should have thought that finding bullion there would be a much more likely way of attaining such City military results. Again, at the end of the circular comes a rather pretentious but slightly heavy paragraph wherein I could suggest that "*Loyal quand même*" may have a very comprehensive application, whilst "*bon sang ne peut mentir*" will I hope next time apply to our ore. A STILL SANGUINE SHAREHOLDER.

*London, July* 3.

### EXCHEQUER GOLD AND SILVER MINING COMPANY.

SIR,—In reading the report of proceedings of the general meeting of shareholders of this company I was struck by some of the statements made, which, I fancy, would tend much to discourage the shareholders, and, with your permission, would ask a few questions thereon. Mr. Henry Sewell prefaced his remarks by stating that after many years experience in several countries, amongst which he included Nevada, "the Exchequer Mine was very peculiar in its character; it was a speciality, it was a class of ore that was very particular—that is to say, it was ruby ore, or ruby silver, and it required a very long experience for a man to be able to deal with that class of mine." Now, upon what experience or authority does he make such a statement? Is it only that "in one respect this company's mine was like the Chilian mines, where, in one instance, they took ten years in endeavouring to get at ruby ore?" In what respect is ruby ore so very peculiar, or a speciality, that it requires such a long experience to find it or deal with it afterwards, and why is it necessary to go to great depths to find it? Of course, to such an experienced man as Mr. Sewell there can be no trouble in solving this question, having asked Mr. Baxter on Dec. 14, 1872, in Utah, to inform the world at large that Mr. Sewell had had charge of 21 copper mines, 6 silver mines, 2 mills, and 3 smelting works, belonging to his father, in Chili, and from which he shipped every year 7000 to 8000 tons of copper regulus of 60 per cent., and 420 tons of ore, from a fissure vein in Charnacillo, realising in Swansea, in 1851, $850,000, or about $2000 to the ton; and, as he further informs the meeting of his having also in 1851 shipped to Swansea 400 tons of ruby ore taken from a chamber, realising 160,000*l.*, together with 9½ tons of almost pure silver, equal to about another 60,000*l.*, and all this from a property attached to an estate of three miles, whereon he fed 1500 mules, 300 oxen, and 300 horses, to work the mines. Did the mines suddenly give out, that he left? If not, as they deepened he might have become a second Crœsus. It seems, therefore, strange, though Mr. Sewell must be well aware that in Austin, in the State of Nevada, when he paid the Pacific Mine a flying visit, that the Florida and Plymouth, adjoining that mine on one side, and the West Florida and Manhattan Mines on the other side, all had ruby silver at a very shallow depth, and the West Florida encountered it at 60 ft. from the surface, and I know not why it was not followed; and, passing on to the Toryabe, where a large portion of our ore was also ruby, to mines a distance of over one mile, there was met with a similar ore, more or less abundant, as the case might be.

Now, Mr. Sewell says ruby ore is very difficult to treat, as it contains a large amount of antimony, and yet he says "he has chloridised ores in Nevada to 93 per cent. with great facility." Does Mr. Sewell mean 93 per cent. of chloride of silver, in which case he will only have 70 per cent. of metallic silver, showing an actual loss of 30 per cent. of the metal originally contained in the ore, or does he mean that he recovers 93 per cent. of the metal originally contained in the ore, or, in other words, does he assert that in treating these Nevada silver ores he has been in the habit of doing so with a loss of only 7 per cent. of the metallic silver contained therein? If the latter I think, and in this Professor Price, of San Francisco, will bear me out, that there is no instance in Nevada where the ores in bulk were chloridised and turned out of the mill up to 93 per cent. of the fire assay of the pulp. I have seen no furnace yet erected that can throughly chlorodise the ores; they all lack an essential element in their construction, and unless the ore is completely desulphurised you cannot chloridise it; the result is a great loss in the pans, to say nothing of the immense waste of silver during its treatment in the furnace, owing to its great volatility. I have known Nevada since 1862, and have carefully watched the different chloridising furnaces erected from the first introduction of the Stetefeldt, a modification of the Gustenhöfer, about the first of which was put up by the Manhattan Company at Austin, and for several years they treated the ores not only from their own district, but from Belmont, and many other outlying districts, and I fail to remember any under the management of Mr. Henry Sewell, or with which he was connected, neither could I endorse his remark "that there were in the present day so many different good

furnaces of the chlorodising type that the wonder was that some well-known type of furnace was not adopted instead of the O'Hara." The contrary is the truth; I repeat there are no good chlorodising furnaces.

But perhaps Mr. Sewell meant Utah when speaking of his experience in Nevada after he left the unfortunate Utah Silver Mining Company (Limited), and took such successful charge of the Camp Floyd Mine and mill. There, no doubt, his manager often brought his bullion to great fineness, as evidenced in his letter to Mr. Baxter, wherein he tells him that "he had placed the four last bars at the jewellers' window under Miss May Howard's mammoth photo;" he says, "I started as follows under the Photo-Camp Floyd mill. Miss May Howard astonished at the purity of this bullion from Sunnyside Mine $307 per ton, 995 fine. Her sweet smile indicates the impression of the purity of this silver. Please send me a $100 brick to present to Miss Howard, 997 if possible as soon as you can." To my mind the great disappointment to the shareholders has been in the want of exercising due care and knowledge in the sampling of either the heaps or the pulp, and further that as rich bonanzas have been found within 400 ft. of the surface, as at the greater depths advocated by Mr. Sewell, I would advise the prosecution of researches in the depth already attained, where, doubtless, an "experienced man" would meet with success, and this would in no way interfere with the continued sinking to greater depths, but to abandon entirely the ground contained within the present depth of 400 ft. without energetic exploration, and would, to my mind, prove the entire absence of practical knowledge in conducting the search. If the ore is properly chloridised, and subsequently treated in the pans without waste, 85 per cent. of the fire assay ought at least to be obtained. But evidently the O'Hara furnace at the Exchequer, if a fault at all, fails to desulphurise, or the heat employed is too great, thus causing the volatilisation of the silver chloridised; in either case the person superintending such furnaces ought to be in a position to say if one, or either, or both of these defects exist, and if not he is clearly incompetent to fill the post. RUBY SILVER.

## EXCHEQUER GOLD AND SILVER MINING COMPANY.

SIR,—"Another Shareholder," hailing from Lloyd's, calls me an "expert," a title which I have always distinctly repudiated, quotes at length what I am represented to have said at the general meeting held on April 11, 1876, and a few words from a letter, which he calls an article written by me and published by you in November, 1876; and challenges me to give "an explanation of these extraordinary statements." Assuming that he refers to the former of his two quotations, I decline, because I never made the statements referred to, as he will find if he will look at my letters of April 18, and May 1, 1876, published on pages 455 and 507 of your Journal for that year. "A Sanguine Exchequer Shareholder" quotes from the "San Francisco Stock Report." May I ask what the authority is worth? From what I learned when out there, I should say not much.—*Junior U. S. Club, St. James's, July 2.* A. JOY.

## HULTAFALL MINES.

SIR,—In the Journal of June 23 I notice a report upon the above mines by Capt. Southey, who was sent here by Mr. George Batters, and to which I could not wish to add one word or take any exception to, were it not that there is a small paragraph in another part of the same Journal headed—

MINING ARBITRATION.—Capt. Southey, of West Chiverton and other mines, has just returned from Sweden after a fortnight's absence, during which time he has successfully arbitrated in an important mining dispute in the country. The dispute arose out of the practicability or otherwise of dressing certain lead and blende ores. Capt. Southey's opinion is they can.

Now, as it is well known that I was sent out by Mr. George Batters on Feb. 14 to examine and report upon the Hultafall and the Lerbeek or Isäs Mines, and that subsequently on April 14 I was sent out in conjunction with another gentleman to take the general management of the Hultafall Mines for three years by Mr. Batters, it would appear from the above paragraph as if a dispute had arisen, or difficulties had cropped up between us, as to the practicability of dressing the Hultafall ores, whereas the reverse is the case. We have never entertained for a moment any doubt upon the subject. True Mr. Batters, who visited the mines since we have been in charge, brought with him another mining captain to examine the ground, but his opinion I have nothing to do with. Had the report which has appeared in the Journal done me the courtesy to add that it was an entire and full corroboration of my report, it would not have been needful for me to now address you, but as the article in question may tend for the reason I have stated to have an injurious effect upon my reputation amongst my friends, I beg you will kindly publish my report, which I now enclose.

*Askersund, Sweden, June 26.* HUBERT BANKART,
General Manager of the Hultafall Mining Company.

*London, March 9.*—Mayfield Shaft: This is the first shaft put down, and is now 41 ft deep. It is sunk upon the lode, which bears north east by east and south-west by west. At the bottom it is 21 ft. long by an average of 12 ft. in width. There is neither true hanging nor footwall as yet. I had 10 shots fired in the bottom, and from the resulting ore I sampled 4 to 5 cwts. of the mineral, which I placed in a barrel and filled it up with blende and lead ores, being a fair average of the heaps lying at grass, all being kept separate, and shipped to London. There are 6000 centners (24 centners being equal to 1 ton English) of picked blende and lead ore at surface from this shaft. About one-half of this is galena. The blende contains lead running as high as 20 per cent.; there are also over 100 tons of small set aside, being about one-fourth the value of the above. The lode dips now 25° south-east; 90 ft. west on what is termed a parallel lode I had several shots fired from the surface, revealing an abundance of ore of precisely the same character, and extending as far as the trials went, 12 ft. in width. This is called the Perkins' trial shaft. Striking again in a north-north westerly direction from the Mayfield shaft, 90 ft. and 45 ft. north-north east from the Perkins', I found another small shaft named the Alexandra down 10 ft., and here I caused a number of shots to be put in exposing similar mineral. Although these two last mines have been taken to be on a parallel lode to the Mayfield, I take them so far to be all one, and which will be proved in depth to be so I have but little doubt. This makes the lode at surface more than 50 ft. wide. This property adjoins that of the Vieille Montagne Company in the centre of Lake Tryssjon. At present there are no buildings over the workings of the Hultafall Mines, which tend to retard at times the regular continuance of active work, owing to the heavy snow, but during the fortnight ending Feb. 14 last there were extracted from the Mayfield shaft 1000 centners of picked ore at a cost of 485 kronoso or (say) 25*l.*, besides uncovering some ground round about for examination. The powder and fuze cost about 2*l.* extra. Of the ore I took from the bottom of the shaft I had a sample assayed here, which yielded by the dry way 38 per cent. lead, and by analysis lead 52·50, sulphur 10·65, silica 36·80, with 43 ozs. of silver to the ton of lead, but from the surface in a variety of alloys the general average of the mineral as it comes from the shaft gave 30 per cent. to 33 per cent. zinc, and 20 per cent. lead; I value the clean ore at gross, therefore, as follows:—Galena 10*l.* per ton containing an average of 30 ozs. silver to the ton of lead, and the blende at 2*l.* per ton giving 12*l.* per ton as it now stands. Some of the blende contains as much as 10 ozs. of silver to the ton, making it worth now about 147*l.* per fathom. These mines are a continuation of the Lerbeck or Isäs property. To work the Hultafall property to advantage I should advise sinking the three shaft rather further apart. Two shafts should be at least 12 ft. by 6 ft., each divided into two compartments, timbered and trafficed for working with cages. The other one may be carried down its present size, or made less to 15 ft. by 6 ft., and divided into three sections, one being for ventilation and pumping. These should be sunk at least 15 fms. or 90 ft. before starting any level to stope or to communicate with each other. The Mayfield shaft ought at once to be timbered. As these shafts will from all appearance be sunk in mineral the whole distance, we may approximate the quantity extracted as follows:—Two shafts 12 ft. by 6 ft. by 90 ft. = 60 cubic fathoms; one shaft 15 ft. by 6 ft. by 90 ft. = 37·5 cubic fathoms: total, 97·5. About one half of this may be considered as blende, which, taken at 250 lbs. to the cubic foot, will give 1170 tons, worth (say) at gross 2*l.* per ton, or 47*l.* per fathom in blende = 2340*l.* The other half will give (say) 50 per cent. galena picked, at 525 lbs. to the cubic foot, producing 1218 tons, worth, including silver, (say) 8*l.* per ton, or 100*l.* per fathom, or 9744*l.* Thus 2340×9744*l.* = 12,084*l.* These shafts may in six months (everything permitting) be sunk at a cost of 1500*l.* for labour and 250*l.* for materials. After these shafts have reached this depth communications should be made with each other, and the sinking still continued, and the ground will then be able to be opened upon, enabling the capacity of the output to be almost unlimited, always supposing that the lode should still continue of the same character as it now is at the deepest point reached. Much in future depends upon the amount of capital employed. It will be necessary to provide a 25 horse power steam-engine at first, so as to wind from each of the three shafts, and to pump from the centre one. The motive-power can hereafter be increased as desired. A Blake's crusher should be placed at such an elevation as will enable the carts to come directly under for receiving the picked ore. A circular saw and table, tramcars, rails, &c., must be also provided. It is necessary to erect at once a house for the superintendent at the mines and dressing-floor, as also the buildings over all the various works; this is of the first importance. The cost of transport from the mines to the mill at Salaholm may be considered now at 1s. 6d. per ton. The present road from the mines to Salaholm can be placed in good order, so that there may be a down gradient all the way to the mill. Ultimately this will be found profitable to convert into a tramway. Labour appears to be abundant. The dressing floors and reduction works should be erected at Salaholm, about 2½ to 3 miles from the mines; the situation is in all respects eminently adapted for the work. At the mill (at present a flour and saw mill) there is a splendid steam of water running even throughout the severest winter. The fall at present is about 20 ft., and can be easily increased to 26 or 30 ft. A new 40 ft. wheel can be erected where the saw is at present fixed, and coupled to the shaft of the other wheel. The actual dressing machinery for separating the blende and lead ore required can only be determined upon when it is decided what form they are to take, whether that of the Vieille Montagne Company, which is very simple and most effective, or any other of the many varieties now in use elsewhere. Adequate provision should be made for dressing 1000 tons a month. About 250*l.* a month must be provided to meet wages, &c.; to prepare these works for (say) six months 1500*l.* A good building, as before alluded to, must at once be provided, otherwise it would be impossible for the men to work during the intense cold of winter and heat of summer. This site has been obtained on very reasonable terms, and the terms upon which the lease for twenty-one years of all the minerals found upon the Mersetta estate, in which the Mayfield and other mines are situated, are most unexceptionable—a royalty of 2 kronoso, or 2s. 2½d. per ton, of dressed mineral taken away, and this is renewable in perpetuity every 21 years if the lessee so elects upon the same terms. It being a direct lease the title is perfect. The site at Salaholm is admirable for the erection of furnaces for the smelting of the galena. Fuel is cheap, and English coal can be delivered here at 1*l.* a ton. Charcoal is about 2d. a bushel. There is a railway station called Mariedam on the Motala and Nigalby line, connecting with the main line to Stockholm or Gottenberg, about three miles from the mines, and 5½ miles from Salaholm. At the latter place the ore will be taken in small barges direct to the vessels in the lake, which will convey it to England or elsewhere without any transhipment. The freight to England may be put down at 12s. per ton, including everything. In conclusion, I consider that the value of the Isas, or Lerbeck and Hultafall mining properties is an actual fact beyond any reasonable computation. There seems to be no manner of doubt but that time and capital alone are needed to make it superior to their neighbour the Vieille Montagne Company, who are now regularly paying a dividend of 12½ per cent upon their enormous capital of 1,500,000*l.* sterling. The proximity of the mines to magnificent water power for dressing the ores, and the great facilities offered for shipment, either direct by water route or by rail to Gottenburg, and thence to England, with exceedingly low freights, render this property an invaluable one.—HUBERT BANKART.

## LEAD AND BLENDE ORES—HULTAFALL MINE.

SIR,—I read in last Saturday's Journal a letter signed "Altenberg" relative to my report on the Hultafall mining property. I never care to notice anonymous letters, and more especially such an unminer-like one as that of "Altenberg's," but I feel compelled in justice to those who are interested in this concern to tell him a few facts, and inform him that he is totally ignorant of what he professes to know so much about. With my own little knowledge of dressing I am quite prepared to prove the statement made in my report—with ordinary care and skill the Hultafall ores, lead and blende, can easily be separated and made marketable—in fact, the adjoining mine, the Vieille Montagne, are at the present time dressing lead and blende, and making it marketable to the tune of 40,000 tons annually, and this stuff is of precisely the same character as the Hultafall ores; this single fact alone should be quite sufficient to convince any miner of the ignorance of "Altenberg's" remarks. The ore is crushed as fine as some of the tin ores in this country, and after passing the rolls everything except the very slimes is jigged, and this is carried on all the year round without the slightest interruption, not like "Altenberg" would have it to be six or seven months in the year frozen up; this may seem strange to a novice in mining, but no more strange than true. As regards the samples that "A." harps about, anyone who understands produces of lead and blende must see at a glance he is equally as much in error, and if he had first waited the result before rushing into print he would have shown the mining community that he was possessed of a little common sense.

With reference to his remarks about West Chiverton, all I can say is, so far as I am individually concerned, I would give him 19s. in 1*l.* to work the halvans after we get done with them, and I would advise him and all such scribblers in future to learn their business before making themselves appear so ridiculous in the eyes of the public on a subject of which he is so entirely ignorant.

*West Chiverton, July 5.* RICHARD SOUTHEY.

## LEAD AND BLENDE ORES.

In answer to the letter of "Altenberg," in last week's Journal, Capt. Southey does not claim to have discovered a method of separating lead and blende. The specific gravity of these respective ores renders their treatment a mere mechanical operation. Instead of the ores in question being of little commercial value, "Altenberg's" estimate of 4*l.* 5s. per ton as the average produce of a lode cannot be so regarded. The average value of Van ores, taking the liberal estimate of 10 per cent. lead in a ton, would be 30s. per ton, and West Chiverton average is certainly not more than half of this. It is simply not true that the ore in question has baffled both Swedes and Belgians. I quote from the directors' report at the Vieille-Montagne Company's meeting, held on April 25 last—"With some few exceptions, the company's mines are productive. This is especially the case in Sweden, where the production is steadily increasing, and promises to give rich returns upon the capital expended there. The total production for the year has been 54,500 tons of blende and 5900 tons of lead."

The quantity of dressed ores from the Vieille-Montagne Company's mines is so enormous that we can hardly comprehend the figures. Surely this is an answer as to whether the ores can be dressed or not. As to whether the mines can be worked to a profit or not, I will merely quote from the same report the statement that over and above profits divided there has been written off the Vieille-Montagne Company's mines, in Sweden, no less a sum than 5,452,000 frs. This company bought its mines about 22 years ago, and it is said gave about 60,000*l.* for the setts, when little or nothing had been done upon them. "Altenberg" wishes to know in what latitude and longitude Orebro is situated, how it can be reached, and during how many months of the year? The gist of the insinuation would seem to be that the mines can only be worked for a few weeks or months in the year. As to this, I may emphatically say that they may be worked all the year round, and that ore dressing can also be carried on during the whole of the year. He also asks whether this is the same property that Captain Hoskings wrote about in the Journal some years ago.

About this I know nothing, not having seen that gentleman's letter, but I may say that the sinking of Mayfield's shaft was commenced only about six months ago, and the discovery now in question laid open. He also enquires what facilities exist for getting machinery and materials to the mines. My reply is that there is a railway station within four miles of the mines, and there is water communication within a few hundred yards of the dressing-floors. The dressed ores can be sent to England from the mines at a gross cost for freight of about 12s.

The water route is open about seven months in the year, and railway communication all the year round. It would be quite as easy for "Altenberg" to visit the mines at Christmas as at Midsummer Day. As to Sweden being a remote country, I myself left Hull on a Saturday morning, and returned to Hull on the Sunday week, having had four full days in Sweden.

As to the question of labour, about which there is also an insinuation, the Swedes are a most industrious people, excellent miners and they work at much cheaper wages than are paid in England. We are paying about 12s. per man per week. The analysis of Capt Southey's statements by "Altenberg" is in error in one case at least, and that is with regard to silver, which he puts down at 1½ oz. to the ton of ore. I have before me an analysis by Mr. Claudet, which gives 4¾ ozs to the ton of ore, containing 16 per cent. of lead, and as it would take 5 tons of ore dressed up to 80 per cent. you must multiply these 4¾ ozs. by five, which would give 23¾ ozs. per ton, instead of 1½ oz. The above analysis was of an average sample from the bottom of the mine.

I will not take up more of your time. If "Altenberg" will call upon me I shall be very happy to give him such accurate information as will save him from making loose and incorrect statements. I was fortunate enough to purchase West Chiverton some years ago for 3,000*l.*; I formed it into a company of 3,000 10*l.* shares, and in a very short time 50*l.* per share had been paid in dividends. I was also fortunate enough to purchase Van some years ago, and in a very short time we had 300,000*l.* in dividends, and the property commands a market value of about half a million sterling.

I am of opinion that Hultafall will prove as great a success as the latter. I have not only carefully inspected the mine myself, but have taken the best opinions which I can obtain, and I firmly believe that we have one of the most important discoveries of its kind which has been made in Europe during the last quarter of a century.

"Altenberg" will not have long to wait for proof as to the statements made by Capt. Southey in his report, for the company have resolved to allow him to carry out his report in its integrity; and as he promises a profit of 3800*l.* per month on an output of 40 tons per diem, I would recommend "Altenberg" to restrain his anxiety for a few months, when, if Capt. Southey's promises are not fulfilled, he can criticise with some power. GEO. BATTERS.

*Austinfriars, London, July 4.*

## THE CAPE COPPER COMPANY.

SIR,—That with the unit of copper at 13s. and 13s. 6d. this company should be able to keep up its dividend is a most striking proof of the value of the undertaking. In 1875 the ores raised averaged about 30 per cent. of copper, but now the company is shipping ores of no less than 34 per cent. As the mines yield yearly close on 12,000 tons of ore, a surplus yield of 4 units to the ton being equivalent to 48,000 units, such surplus at 13s. 6d. would amount to 32,400*l.* per annum, a fact which clearly shows that even at the present low price there is no fear whatever of a falling off in the dividends. It is not too much to say that with a price of copper (say) of 75*l.* per ton, a very moderate basis, the former dividends of 1*l.* 5s. per quarter, or 5*l.* per annum, could easily be resumed, if not exceeded. Such prospects must be very gratifying to the shareholders, and reflect the highest credit on the most able management.

*London, July 4.* A CAPE MERCHANT.

P.S.—On referring back to the report for 1875 I see that the average of the ores was only 29, not 30 per cent. Now, the yield of Ookiep for April, 1877, was 34 per cent. Indeed, a falling off in price can always be met at those mines by increased production, economy in transport, and above all by the constant improvement in dressing up to a higher standard.

## MINING IN SOUTH AUSTRALIA.

SIR,—The low price of copper continues to exercise a depressing effect on mining operations in the colony, and several good mines that would pay if copper were 80*l.* a ton, or over, cannot now do more than meet expenses. The latest telegram from London mentions a slight improvement, but in the face of increased shipping and insurance expenses, on account of the war, the rise in price is not at present more than sufficient to meet the altered state of things. It is a matter for great regret that a country like South Australia, where copper, iron, lead, silver, and other metals are found in such rich abundance, should be doing so little in mining beyond the limits of the Moonta Wallaroo, Hamley, Devon Consols, Kurilla, Doora, Paramatta, and three or four other mines in Yorke's Peninsula, and the old Burra and Kapunda to the north of Adelaide. We have been hoping for years past to see the railway made for 200 miles northward from Port Augusta. There seems to be now some ground for hoping that it will be commenced during the present year, but our Ministry are not very strongly in favour of it, and seem to have been delaying its commencement as much as possible. However, I believe the line is now surveyed, and tenders are invited for its construction. It will undoubtedly aid greatly in opening up a number of valuable mines, as at various distances on either side of the line of railway there are scores of promising copper lodes, not to mention a few really good mines which have been satisfactorily proved years ago. The line will run within about 15 miles of the Yudamutana, Daly, Stanley, Sir Dominic, Apex Hill, Blinman, and other well-known and valuable mining properties. Besides these, there are very many others within a reasonable distance of the railway—say, 20 to 30 miles—so that cartage would not be a very heavy item, or wire tramways for conveying the ore might be constructed with advantage. With such facilities as the railway and branch lines of wire tramways would afford, if the cost of cartage for 25 per cent. ore could be reduced to an average of 3*l.* per ton throughout the North, I believe our exports of copper ore could be doubled within two years after the opening of the railway, and if copper maintained a price of not lower than 80*l.* in the English market the production of it in this colony might be increased almost indefinitely. With such mines as the Mount Rose, the Mount Lyndhurst, the Wheal Butler, the Welcome, the Mallee Hut, Davison's the Oratunga, the Wirryoota, and many others, there is little fear of the supply of ore running short for centuries to come. But, besides copper, the deposits of silver-lead, manganese, iron, and other metals in the North are very extensive, and new discoveries will undoubtedly be made, when once mining is resumed with vigour, in that part of the country. There are also gold reefs, and I should not be surprised at any time to hear of a discovery of tin, or even of diamonds. Several gems of inferior rank have been already found there—as topaz, garnets, agates, carnelian, beryl, and beautifully clear crystals of quartz, fit to cut spectacle "pebbles" from. Good diamonds have been found associated with gold in other parts of South Australia.

When the railway is fairly commenced it will begin to benefit the districts through which it passes, especially for the first 50 or 60 miles, as agriculturists are rapidly pushing cultivation forward into the interior, where five years ago it was thought folly to attempt anything like farming. I confess I do not think it wisdom to do so now, as the very uncertain nature of the rainfall, and the general dryness of the climate in the Far North, tend to make farming a very precarious occupation in those regions. The very dryness of the climate, however, renders it extremely healthy, and when the railway gives facilities of communication, living 200 or 300 miles north of Port Augusta will be more enjoyable than it has been.

The railway will have something more to do than merely to carry ore. There will be a large wool traffic, and considerable numbers of fat sheep will be sent to market by this means. Within 50 or 60 miles of Port Augusta wheat growing has been commenced for two or three years past, so that there will be a wheat traffic also.

I lately saw a magnificent specimen of crystallised blue and green carbonate of copper. It was large, and equal to anything the Burra Mine ever produced. It came from a new locality which I am not at present allowed to mention. The lode recently discovered at the old Callington Mine is turning out well, and I have seen some fine green carbonates of copper lately brought down from the Far North near the line of railway. Some splendid discoveries have been made 20 or 25 miles from the northern terminus of the line, beyond the Government Gums. The Register newspaper, not generally an enthusiastic advocate of mining, has a strong article urging the introduction of English capital to work our mines, as there is not sufficient available in the colony to do it properly. J. B. AUSTIN.

*Adelaide, May 17.*

## ROCK BORING MACHINERY.

SIR,—Why is it that my relations leave "progress" and "improvement" to the foreigner? Why is it that the Foster Borer at Carn Brea is now so extolled, and the Barrow Borer, the pride and boast of our leading practicals, the be all and the end all, the *ne plus ultra* of boring machines, is become within a short week a mere direlect toy? Why is it that the members of our Celtic family are so blind, so ignorant, so presumptious, so unbelieving, so overbelieving, so imaginative, and often exhibit themselves as blatant, whimpering, Bobadil cowards? Steady, my friends, do not lose your senses; the Foster Borer is not the means, only a part of the means, by which 3 ft. a day is made in the level at Carn Brea. Put in four Barrow, four Ingersoll, four McKeans, or four Darlington machines, work them together, employ the same men and method of doing the work, and a similar if not a better result is likely to be achieved. Why, if the Beaumont people do not with their host of well trained, especially paid hands, and their abundant free use of dynamite, drive at least 6 ft. in 24 hours, then other borers and other systems which can be named will beat them. Sober your sense, warm-blooded relations, drop sound and fury in your speech, it signifieth nothing. A thousand pounds premium ought to incite something like an acrobatic performance, but do not applaud, it will not be righteous to do so, until with four-four such machines at least 6 ft. per 24 hours is driven in the level at Carn Brea. Remember, if you can, that long ago 10 ft. in 24 hours was made in the St. Gothard Tunnel, and a still greater rate of progress in the Mascotenong Tunnel, and under circumstances much more adverse than any prevailing at Carn Brea. Consider, again, my friends, if

one boring machine at Dolcoath drives 5 fms. a month, four ought to make 20 fms. a month at Carn Brea.

Once, however, you did not believe in boring machines; you persecuted and jeered at the prophets who advocated their use; you heaped upon them the contumacious remark that they were not "practicals," had not 40 years experience (without a knowledge of the alphabet) with the "pick and gad." Yet now you swear by the gift of a high-pressure success at Carn Brea that the halycon days of mining are about to dawn. No such thing, wait patiently and see.

COUSIN JACK.

## COLLIERS' WAGES, AND THE PRICE OF COAL.

SIR,—I note the article in last week's Journal on Mr. Rowley's figures, and it is amusing to find how the old adage is confirmed about statistics proving anything. What can be more absurd than some of the conclusions which they would appear to bear out? For example, at the top of page 702 it is noted that in Durham the wages are 20 per cent. higher than in 1871, while the selling price of coal is 4s. a ton less. Now, just let us follow this out—1871 was not a very good year; but, for argument sake, we will take it that there was no loss on working coal that year.

I suppose it is fair to assume that the cost and charges of putting coal into wagons was 6s. a ton in 1871; add 20 per cent. (1s. 2d.) for 1876, and the figures would stand—

| | |
|---|---|
| Loss, extra cost of rai-ing | 1s. 2d. |
| Loss, price realised, 29s. in 1871, 25s. in 1876 | 4 0 |
| Total loss per ton | 5s. 2d. |

If you turn to Mr. Willis's Report for 1876 you will find some of the coalowners raise a million tons a-year, and a million tons at (say) 5s. is 250,000*l.* Now, does anyone believe that a single company lost 250,000*l.* more last year than in 1871? I do not; and yet one would almost fancy Mr. Rowley would have us believe it. It is clear that some of the charges on coal reaching London are less than they were in 1871, and the best way to show the statement for a fair comparison would be to take a colliery's books and select a fair example of the prices realised by the same quality of coal reaching the same customer for all the years from 1871 to 1876 inclusive, giving the following data:—

| | 1871. | 1872. | 1873. | 1874. | 1875. | 1876. |
|---|---|---|---|---|---|---|
| Hewing, per ton | ... | ... | ... | ... | ... | ... |
| Other charges | ... | ... | ... | ... | ... | ... |
| Repayment of capital | ... | ... | ... | ... | ... | ... |
| Lordship | ... | ... | ... | ... | ... | ... |
| Cost put into wagons | ... | ... | ... | ... | ... | ... |
| Dues to London, miles | ... | ... | ... | ... | ... | ... |
| All other charges to London | ... | ... | ... | ... | ... | ... |
| Total cost at London | ... | ... | ... | ... | ... | ... |
| Price realised by coalowners in London | ... | ... | ... | ... | ... | ... |
| Selling price in London | ... | ... | ... | ... | ... | ... |

I cannot see how a fair comparison can be made without some such statement as above. I do not by any means say that such a statement as Mr. Rowley has put forth, or such a statement as I have proposed, should be given for the purpose of convincing miners that they should submit to a reduction. Masters are the best judges of what they can afford to give. The public are *their* masters, and *they* will give as little as they can.

As I have already stated in former communications to you, the coalowner and the miner get by far the larger proportion of any advance got, for the simple reason that railway companies' rates are fixed by Act of Parliament.

AN ENGINEER.

## THE ROOTS MINE VENTILATOR.

SIR,—There is no doubt that this machine is a powerful and effective blower, and it may be suitable in every way for a blowing machine for iron furnaces, &c., but we submit that there are points in connection with the machinery employed which are open to serious objections when employed to work a mine ventilator. The use of cog-wheels, spur-wheels, bevil-wheels, &c., has long been entirely discarded in this district for working winding, pumping, and ventilating machines, and good reasons can be assigned for this arrangement, as those parts of machinery are extremely liable to breakage, however carefully they may be constructed, and this, of course, causes a very serious stoppage—it may be for days, or even weeks—while castings are being made.

In order to prevent any stoppage from this cause all engines are worked by direct-acting machines, either vertical or horizontal. In the case of ventilating fans, such as the Guibal, two horizontal engines are placed, one on either side of the shaft and one of these engines driving the fan generally at about two-thirds the maximum sped it is capable of working, so that in any emergency, such as an explosion, falls obstructing the air-ways, &c., the engine can be driven up to the maximum speed at a moment's notice, and this is, of course, an immense advantage. The working parts are so simple and strong that a breakage is a remote contingency; but, should this occur, the duplicate engine can be attached and got to work in four minutes, so that even in that case no serious stoppage occurs. The only other danger to apprehend in the case of the Guibal fan is the breaking of a bolt or bolts about the outer edge of the framework of the fan. This sometimes occurred with the earlier fans, when only single nuts were employed, but in the later fans, of large size, the framework has been so improved, and check-nuts employed, that all danger from this is nearly averted. We can assert that during a pretty long experience with one of these fans no accident has occurred to the engine, and the fan has only been stopped at rare intervals for the examination of the framework of the fan. The use of cog-wheels, bevel-wheels, &c., on any ventilating machine I would hold as extremely objectionable—as, in fact, a retrograde movement, instead of advancing in the line of improvement.

VIEWER.

## COMPRESSED FUEL.

SIR,—For many years past the subject of compresing fuel has been one in which your readers appear to take considerable interest, yet so far as I have seen the amount of success attained in the treatment of small coal has been very small. The diamond fuel, invented by the late Mr. D. Barker, was, to say the least, a miserable failure, even if it be assumed that there was some novelty in the invention, which in truth is exceedingly questionable, and all the other coal agglomerating patents are equally valueless. If a really good compressed fuel be required there is no reason whatever why it should not be produced without any patent process at all. Any machine which will make good clay building bricks will make good fuel bricks, the great secret being to thoroughly wash the coal, so as to remove the impurities with which small coal is apt to be contaminated. As to the agglomerating material, nothing is better than ordinary coal tar, and if an extra strong brick be wanted let a very small proportion of quicklime be mixed with the coal dust before wetting the mass with the coal tar. The result will be a brick far superior to the diamond fuel, or any other patent brick hitherto manufactured. I saw a brick thus produced thrown only one hour after it was made to a height of 30 ft., and allowed to fall on a macadamised road. It broke into five pieces by the fall, but there was scarcely a particle of dust made. More than fifty of the bricks were then placed in a box with ½ in. play allowed at each end, so that the bricks might be in somewhat the same position as they would be on board ship. The box was then violently rocked by attaching a strap to a machinery shaft, so that the bricks should be jerked from end to end twice at each revolution. At the end of one hour the bricks were scarcely injured, less than 1 oz. of dust having been made, and only seven of the bricks were broken—these quite cleanly.

But it is not in the production of merely compressed coal fuel that I am at present interested except indirectly. A friend of mine is concerned in a certain district in Ireland, where in the immediate neighbourhood of a vast peat bog there is a large depo-it of a kind of culm; it is very clean, and seems almost, if not quite, pure coal. Both the coal and the culm can be obtained in unlimited quantities by simple digging, and I wish to know whether there would be any market for the combined peat and coal fuel. The peat roughly air-dried and pulverised mixed with the coal in the proportion of about one-third peat to two-thirds coal, and agglomerated with the coal tar and lime dust, as described, can be worked up into balls by hand, and burn in the furnace like a very rich North Country coal—about 5 cwts. of it has been tried. Now, I should like to know whether such fuel could be readily sold, as I feel sure that it could be as easily made by machinery as by hand, and that, too, at a merely nominal price. The district I refer to is close by the Southern Railway, which I was told two years since was shortly to be completed, but whether this has yet been done I do not know, but there appears to be such a good field for enterprise that I feel sure it is worthy of attention.—*Newcastle under-Lyme, July 3.*

CELT.

## PORTLAND CEMENT.

SIR,—I noticed a statement in last week's Journal that Mr. R. A. Gibbons, of Northfleet, is about to make Portland cement by mixing the materials used—as chalk and clay—intimately without washing the same. I beg to say this is nothing new, and has been done in Germany for a number of years. Messrs. Dyckerhoff and Son, near Biebrich, on the Rhine, have carried on their Portland cement works in the way proposed by Mr. Gibbons for the last 13 or 14 years most successfully, and they exhibited samples of their manufacture some years ago in one of the annual exhibitions at South Kensington, which are now discontinued. Messrs. Dyckerhoff crush their limestone under heavy rollers, mix the same with clay intimately by special means, and the mixture is damped and passed in its plastic state through a pugmill, and made into bricks by means of a wire apparatus. The bricks, after being dried for a time by exposure to the air, are placed in the Hoffmann kiln and burnt in the ordinary way. Only quite recently Messrs Bazley White, Bros., have erected the first Hoffmann kiln of great capacity at their cement works at Northfleet, after having personally satisfied themselves at Biebrich of the simpler mode of manufacturing cement in connection with the fuel saving Hoffmann kiln, as compared with the old and wasteful mode of Portland cement manufactory, very little modified since its first invention.

HERMANN WEDEKIND.

*Fenchurch-street, London, July 5.*

## JIGGING MACHINERY.

SIR,—In your report of my paper, read before the Mining Institute of Cornwall, I observe that you mention "Stoneycroft Foundry" in connection with Collom's Patent Jigger, instead of "Sandycroft Foundry," by correcting which you would greatly oblige. I may add that since writing my paper I find that the machine can be supplied at less cost than that stated by me.

R. A. VARDEN.

*Camborne, July 4.*

## JIGGING MACHINERY.

SIR,—Permit me to record the pleasure I felt in reading the remarks of Mr. Varden, in his contribution as read before the members of the Mining Institute of Cornwall on the above subject—a subject which has evidently been left to remain in the background of the mining stage far too long for the weal of Cornish mining enterprise, and a general inspection of the *modus operandi* of dressing now existing in ten out of every dozen of the Cornish mines will fully bear me out that a radical change is greatly required in the means and name. In the place of the machinery now in general use being called ore cleaning, I would suggest that it should be called ore destroying machinery, and I am very glad to see a gentleman of Mr. Varden's abilities taking up the subject, which I hope will be acted upon by the agents of the mines of the county. I think they must permit me to lightly place the blame at their doors. Such a state of things is much to be deplored, and that those who are so closely connected with Cornish mining should be so snail-like in their advocacy of a better system of dressing I cannot well conceive, fully believing that a step in that direction would at no distant date be the means of placing them in a far better state than the ignominious one they are now in.

Successful jigging, as Mr. Varden says, can never be attained without proper classification, and of all the systems that I have seen to gain that very desirable end I have not met with anything that will compete with Green's system, more especially for low percentage stuff—*i.e.* where the grains of ore are mixed up with the lode matter so as to require very fine crushing to get all the ore therefrom. Mr. Varden refers to West Chiverton. I do not know what plan they have adopted there, but this I know—that a set of Green's machinery will do what he states they are now doing at West Chiverton, and more, for about one-fourth the cost, and for these also I can state what Mr. Varden has done of the West Chiverton pan—that from the time the stuff is put in the crusher until it is in a fit state for the ore-house no shovel work is required. I agree with Mr. Varden that a proper bedding for the sieves is an all-important thing to be studied to get proper work done by jigging. In some mines I have seen used for bedding a mixture of mundic, blende, and lead; this is not an unusual thing where the lode is composed of such matrix, but which should never be allowed, as I consider that to have a proper bedding it should be of uniform specific gravity and, as far as practicable, of uniform size, and also that the meshes of the sieve or perforated plate, whichever may be in use, should be carefully looked after, and cleaned often, as the action of the water forced against the cubes of lead by the strong and continuous action of the plunger gradually wears off their rough corners, when they get fast in the perforations of the plate used, which results in no duty being performed. Mr. Varden says that no sludge or slime should be allowed to enter the sieve, and by all means it should not, and with Green's system it is absolutely an impossibility, if proper attention is paid to its working, for any slime or sludge to enter the various compartments in company with that which is to be jigged. The great secret of dressing lies in the proper classification of stuff, for when slimes are mixed up with stuff of a larger grain, and allowed to go into the jigger, they cause not only an interruption to work being done by it, but it also follows that there will be a great loss of ore. Too much care cannot be given to the proper feeding of these plunger jiggers. A continuous and self feed alone can be relied on which can always be accomplished by means of light elevators, with a receiver attached to the end of hutch. In some mines I have seen the driving gear of these plunger jiggers attached to the same power that drives the crusher—a fact that should never be allowed to remain, as the different sized stuff taken into the jaws of the crusher makes the speed of the driving gear irregular in its motion, which consequently conveys the same irregularity to the motion of the plunger; the number and length of the strokes of the plunger must be governed by the size of stuff to be treated. In the report of the meeting of the Gunnislake Clitters Mining Company the agents are said to have been to Wales to inspect the mode of dressing at some of the mines there. To others I would say—Go thou, and do likewise—and as far as I have seen I have formed an unbiassed opinion that I have not found anything to excel Green's patent if properly erected and looked after.—*July 3.*

ECONOMY.

## CORNISH MINING.

SIR,—That the undeveloped resources of the county are enormous no one can for a moment doubt, and if a tithe part of the capital necessary for the resuscitation of deep and extensive mines were applied to the development of new ground, the result would be the discovery of many a rich mine; indeed, the mines now paying best and with least outlay are of this class—to wit, West Tolgus, the best copper mine of the western division of the county, paying at present depressed price of metals over 10 per cent. on price of shares. West Poldice, Wheal Comfort, and North Busy are in unexplored ground, having large masterly lodes, with all the characteristics of becoming rich as depth is attained, the latter having this week declared a dividend of 1*l.* per share, although only yet about 30 fms. deep; while Wheal Comfort, at a depth of 50 fms. from surface, cut a lode which produced in 5 fms driving the end 200*l.* worth of copper ore; and West Poldice, at the 40 fm. level, have a lode worth 80*l.* per fathom. The outlay on these mines being small, the risk is comparatively nothing, while the chances of success are great. It is such mines that I wish to impress on the minds of those seeking profitable investment for a small outlay. The great wealth of the county was gained by the development of new ground producing shallow deposits of mineral, and consequently inexpensive working. It is the prosecution of such sections of ground that I wish to call public attention to, as being the only sure road to success in Cornish mining. After a very careful selection combined with difficulty, from the fact of its valuable nature, I have just obtained a concession to work a piece of such ground in the richest mineral district of Cornwall, traversed by lodes, both east and west of which have realised for the fortunate proprietors princely fortunes; and analogy points to like results on the necessary small outlay being judiciously spent to develope its resources. The public will be invited to join without promotion money or free shares, a prospectus of which I hope to be able to publish in next week's Journal.—*St. Day, Cornwall.*

CHAS. BAWDEN.

## DOLCOATH MINE.

SIR,—You are, of course, aware that the usual account meeting was held at Dolcoath on Monday last, when it was elicited, by questions put to the manager by Mr. Bolden, that the amount overdrawn at the bankers is about 10,000*l.*, but there is on the mine tin of sufficient value—at 40*l.* per ton—to meet that balance, which is more than can be said for West Basset. The manager is not a responsible agent in this mine, because he is subjected to a committee of management, who directed the tin to be stocked in hopes for a better price, and to meet the costs of working that overdraw was made by them. On one or two former occasions the stocking of tin was a successful measure, the price having advanced so considerably as to make a great gain, as it did at Wheal Owles. Therefore, no blame is to be attributed to the committee for keeping the tin in stock, although in this instance a loss has accrued thereby. I believe, however, the safest way is always to sell tin as you have it really—taking the times' price. The supplies of tin from Australia, &c., will prevent, probably for ever, the return of a high price, it being now very certain that the resources there are not at all likely to become exhausted, as many persons hoped and believed.

*July 3.*

TOURIST.

## WHEAL GRENVILLE.

SIR,—Every shareholder must be pleased to see the reply of Mr. Hodge to the base insinuation of the anonymous paragraph that appeared in the Journal of the 23rd ult. It is well known by the committee of Wheal Grenville where the proposal to appoint a purser originated. A miserable jealous spirit animated that party. Why the committee tolerated such things is an enigma to all outside shareholders. The necessity for a secretary is about as needful as that of a purser. The clerk on the mine is as able, honest, and trustworthy as the secretary in London. The salary of 6*l.* 6s. a month for copying the cost-sheet and attending to other trifling work, no doubt very laborious. Were it more so, less time would be spent in insinuations as devoid of truth as any lies ever uttered.

On the broader ground honest men are maligned and discouraged by such ignorant if not designing people. If the committee take no steps to effect a change before the next meeting I will myself move that the books be kept on the mine, and cost-sheets sent to London to the committee. Capt Hodge left a more lucrative situation to go to Grenville. His responsibility is great, and he knows it; is doing his duty in erecting the new engine-house, and remodelling the floors, &c., with the greatest expedition, knowing that time is money, and long fine days do not last always in Cornwall. Capt. Hodge will retrieve our property and give us a profitable mine. It is the duty of the shareholders to see that no paid servant shall assassin-like strike behind his back.

W. RULE.

*Charterhouse-square, London, July 4.*

## WHEAL GRENVILLE.

SIR,—I fully endorse the opinion of "A Shareholder," expressed in the Journal of June 23, that the appointment of a purser is a necessity, and I fail to see that such an appointment would cast any reflection on Capt. Hodge and his son. Whether a purser would be expected to check the weights of coal and material passing over the weigh bridge or not is not for me to say, but I should hardly think he would sanction the entry in a cost-sheet of any bill that he did not personally know was correct, and to prove it to be so he must certainly be his own supervisor, or have some responsible and trustworthy person to see to the proper delivery of all material. The secretary is the purser as far as the control of financial matters is concerned, and he no doubt examines all bills, but he has no means of checking the weights of material coming into the mine. I do not know of a mine in the county, whether with or without an office in London, where there is not a purser, and I cannot, as an adventurer, see why Grenville is to be the exception. It is true it rests with the shareholders, and it is to be hoped they will see how absolutely necessary it is that the whole local management of the mine should not be left in the hands of an agent and his son. I am told that monthly bills at this mine are nearly 1000*l.*, and that the ordering of almost all the materials is left entirely to Capt Hodge. We are spending money at rather a rapid rate, and from all I can learn likely to keep up the speed for some time to come, therefore it behoves us as shareholders to see that every economy is exercised, and that a proper check is kept, not only on our supplies, but also on our suppliers of material, &c.

ANOTHER SHAREHOLDER.

*Pool, July 3.*

## CLIFFORD AMALGAMATED.

SIR,—It has been said that there is no spectacle more melancholy than that of a "knacked" mine. Of all such specimens Clifford presents the worst that I know. All the buildings are rifled; the old account house, where it was said 100*l.* per month was expended in eating and drinking, has ceased to exist; and so has that of the Consolidated Mines, all the materials being sold in each case. There are scores of acres of waste land not to be utilised any more for vegetable purposes, nor probably for mining purposes either in these mines. But I hear that the debris is being utilised for arsenical purposes at works erected near Poldory. It is not probable that these mines will be opened again for a long period, if ever. The depth below adit is 235 fms., and the adit is 50 fms. from surface. The sett included Ale and Cakes, Poldory, Wheal Squire, Wheal Clifford, Wheal Andrew, Wheal Fortune, Cusvey, Wheal Girl, Wheal Virgin, and West Wheal Virgin, and the number of engines was remarkable. Pumping-engines—Cardoza's 90 inch cylinder; Hocking's, 85-inch; Taylor's, 85-inch; Poldory's, 85-inch; Garland's, 85-inch; Clifford, 70 inch; Wheal Andrew, 70-inch; engine by road, 30 inch; and that at Consols, 85-inch. Of winding-engines there were six of 24 inches, and one of 30-inches cylinder. There was one crushing-engine of 24-inches cylinder, and a 24-inch man-engine. The whole of the machinery was sold for 12,700*l.* to Mr. A. Lanyon, of Redruth, who is said to have profited about 10,000*l.* by his purchase. I heard that he found 40 tons of brass about the engines. He could make no such profit at the present time. He has an immense stock of materials of all sorts for sale at Halenbengle, &c. He is said to be a very rich man, and his father, who left about 100,000*l.* when he went to reside at Redruth, was worth but a few pounds.

*St. Day, July 3.*

MINER.

## MINE ACCOUNTS.

SIR,—The recent discovery at the West Basset meeting, and the fact that Carn Brea, Tincroft, Dolcoath, and other mines are heavily indebted to bankers and others, calls for something more than an exposure through the Press, and I would suggest that one of our local M.P.'s should move in the House of Commons for a commission to enquire into the working of the Stannaries Act. There are many amendments that might with advantage be made in the existing law; and if it were compulsory that all mining companies under the jurisdiction of the Stannaries should be bound to furnish the Court with a copy of the accounts presented at every meeting for the inspection of shareholders and the public, and that the Court should be empowered, on the application of a shareholder, to cause a true and correct statement of expenditure and receipts, together with all liabilities and assets, to be filed for inspection, some good

might accrue. Clause 7 should be amended and made more clear, that no company can borrow money, under any pretence whatever, of a banker or other person for the purpose of carrying on the affairs of a mine. The Court might also be authorised to appoint an inspector on sufficient evidence being produced that accounts were not satisfactory. My idea is that an auditor should be appointed in every company, but if the system now adopted by the mines referred to is to be acknowledged as a proper audit, then perhaps a heavy penalty might be the reward for permitting the issue of deceptive accounts.—*July 5.* DELTA.

## UNFENCED SHAFTS.

SIR,—During many years of expostulation with mining companies the abandoned shafts in Cornish mines were left unfenced, despite the numerous fatal and other accidents which resulted therefrom. At length an Act of Parliament was passed, and an officer appointed to superintend the mines in Cornwall and Devon, to see that this duty, amongst others, is fulfilled. Since then, with some difficulty, supplemented by legal steps, Dr. Foster has caused to be fenced many hundreds of shafts. Where the lessees of mines could not be reached the lords of the land have had to do this duty, and that at considerable expense. But there are cases of great hardship that sometimes occur to lessees who have assigned their interest, and left the mines at work in other people's hands. I will give a case. Captain Parkyn, of Roche, was a lessee of a mine called Castle-an-Dinas, in St. Columb, which he managed a year or two. When the company induced him to give up the management, about three or four years ago, he sold all his shares, and since then he has had no connection with the concern. It appears that the company left some shafts and pits in an unfenced state, and Captain Parkyn has been called upon to pay all the cost of fencing them, and the fines attached. Not only so as lessee, he has been called on by the Duchy to pay a large sum for waste committed by the same company. These are two instances of hardship and of injustice on the part of the company in permitting such expenses to fall upon a disinterested man, as Capt. Parkyn has been since he sold his interest.

*Truro, July 5.* R. SYMONS.

## ABORTIVE RAILWAY SCHEMES IN CORNWALL.

SIR,—In turning over in my office, to-day, a few hundreds of maps in search of one I had mislaid, I hit upon a plan and section of a railway, projected in the year 1830, from Perranporth to Truro, and from Perranporth to Rose-in-vale, near the village of Mithian. It often happens that when a scheme likely to be beneficial is announced a competitive scheme quickly follows, as was the case in this instance. The plan now before me was prepared by Messrs. Francis Wishaw, C.E., of London, and Mr. R. Thomas, C.E., then of Falmouth, joint engineers of the scheme. The line, as laid down in the plan, started from Pontsmear, in Perranporth, and proceeded thence to Bolingey, by Lambourne Castle, Perran Almshouse, New Mills, Coosbean, through Truro to Lower Newham Quay—the length being about 8¾ miles. There are two tunnels laid down, one of 265 fms. and another 110 fms. The gradients are not above 1 in 40, but as the line was intended for horse traction no difficulty is presented by the nature of the gradients. To carry into execution this line 17,000*l.* was proposed to be raised, but it never was raised, for the people of Truro divided between that scheme and another projected from Perranporth, *via* Zelah, to Truro; both schemes fell through, and we have no railway at this day between the much-frequented watering place (Perranporth) and Truro.

The chief object of the railways was to cheapen the transit of timber, coal, lime, and other materials required for, and the produce from, the mines then at work, there being no quay or wharf at Perranporth for shipping or landing goods. The mines then at work near Perranporth were Great St. George and Wheal Leisure, and a few smaller ones southward and eastward, the whole of which have long since been abandoned. Another object was the conveyance of the shell sand from Perran beach and the sand hills near to the farms along the route. At that time sand was very extensively used by the farmers, on account of the lime contained in it, and also because it is useful in softening the stiff clay soils. Since the introduction of artificial manures sand has not been so much used in Cornwall or elsewhere. I question whether investors in such a railway as that now described would receive a good percentage for their investment, but no doubt, in the summer months, it would be much used by tourists and sea-side visitors. But the prospect of such a railway is now out of calculation.

About the same year (1830) the said Mr. Richard Thomas, and in the year 1852 Mr. R. Symons, of Truro, projected a railway from Hayle to Wheal Vor (its climax of prosperity was in 1830), but both fell to the ground for want of adequate support. If Wheal Vor adventurers had constructed such a railway about the year 1820 they would have saved, probably, 20 000*l.* or more in carriage of coals, &c. The late Mr. Richard Tyacke, the purser and manager of Wheal Vor, was also a large farmer, for he occupied Godolphin estate, which is about 500 acres in extent, and employed about 100 mules in carrying coals to the mine and tin from it on their backs in sacks. From 1844 to 1852 Wheal Vor was idle, and it should have so remained, having regard to the interest of the investors. The road from Hayle to Wheal Vor by the necessary repairs needed, from the great wear and tear by wagons, was raised about 4 ft., so much "metal" having been laid on it.

A railway is wanted to connect the West Cornwall line with Helston and the Lizard. Such a line should commence at Gwinear Road Station, and, passing over Nans-gollan Common, should go over a viaduct near St. John's to the top of Menage Street, whence it might be extended to the Lizard and Penryn. Such a railway would serve for Penzance, St. Ives, and Hayle, as well as for Camborne and places eastward thereof for passengers to Helston, &c.

I omitted to say above that the projected competitive line of 1830, by Zelah, was so circuitous as to be nearly three miles longer than Messrs. Wishaw and Thomas's line, and had a stationary engine on the top of an inclined plane at or near each end of the line, so that that scheme was a very bad one. R. SYMONS.

*Truro, July 3.*

## LLANGAN LEAD MINE.

SIR,—Observing the letter of "Surveyor," in last week's Journal, on this mine, and being interested in it myself, I have applied for further information, and find that the captain reports the raising of 1 ton of lead a-day from the sinking of one winze alone, and that the mine throughout is opening well, which bears out the remarks of "Surveyor." The mine also being quite new, and the operations so near the surface, it is inexpensive to work, so that the production of 1 ton of lead per day ought to meet the entire cost, leaving the yield of lead from all other points, also the barytes, a clear profit. From this I think we may fairly look for a good return on our outlay, and at an early date.—*July 3.* INVESTOR.

## CWM DWYFOR MINES.

SIR,—Allow me a small space in this week's Journal to reply to the letter which appears in last week's Supplement, signed by your correspondent "Tourist," respecting the merits of the above mines. As a shareholder and manager of the e mines, I do not hesitate to say, after 22 years practical experience in the working of mines in different parts of the world, that the present prospects of the Cwm Dwyfor Mines will bear favourable comparison (particularly the west-ern section) with any progressive mine in the United Kingdom, and as "Tourist" was so favourably impressed with the value of the property in May, 1873, I shall be very glad for him to pay me a visit in July, 1877, when I feel sure he will be convinced we have a mine which is likely to take ere long a prominent stand in the mining market, and shares at the present time should be at a good premium. I hope "Tourist" will call on the company's secretary and procure a letter of introduction to visit this property, and he may rest assured nothing shall be wanting on my part. Respecting the old adage, "a good bal makes a good cap'n," I fear "Tourist" is like a great many others, which is too often the case. Man is measured according to his success, and not to his ability. But I do hope as mercy is free, and costs nothing, whether our efforts are crowned with success or non-success, forgiveness will be given to those who require it, if such is found necessary to be asked for.

*Cwm Dwyfor Mines, July 4.* JOSEPH JEWELL.

## CARDIGANSHIRE MINES, A.D. 1877—No XVIII.

SIR,—Caegynon stands next, to the west of Troedrhiw Sebon having two lodes, which have been worked as deep as the 70 under adit. The north lode, so termed, is only a branch of the main lode, which stands to the north of it some 40 fms. A great deal of lead ore has been raised from this branch, and if it had been followed eastward it would have formed a junction with the main lode in this grant, and good results might reasonably have been expected. The south lode is a blende vein, from which a large quantity of that mineral was raised at 25s. and 30s. per ton. During this getting the price obtained for blende did not reach, on an average, above 40s. per ton, and the mine was worked at a loss for some years. Had the present prices for blende ore been then obtainable the mine could have been worked at a considerable profit.

After the last company suspended operations it was taken in hand by a person residing near the spot and another from Newcastle-on-Tyne. They gave the landowner some hundreds of pounds for the grant, erected machinery, and drained the mine, attempted to dress some blende, which went out of the jiggers as good and no better than it went in; got short of funds, made a regular mess of it, and, as might have been anticipated from the first, had the machinery sold by auction to pay the miners' wages.

Having in my last given you a sample of how mining has been conducted in this county for many years past, which sample you may consider a fair average of the greatest part of them, for not one out of ten of them have been deepened a foot for many years past, averaging from 3 to 30 years, may I ask can anyone be surprised to hear that mining in this county is in bad repute? How can it possibly be otherwise when there is no capital provided for working, no attempt to estimate what the requirements for giving any of them a fair trial is ever thought of; the men allowed to go month after month without payment, and then to pay 100*l.*; three times the amount spent in vexatious lawsuits? All I can say is it would be far better such parties never came into the county, as it must and does invariably tend to disgrace it. They get their pockets filled, and let the other shareholders and the properties take care of themselves, and in order to silence all enquiries and enquirers wind up by the old method of "'Tis ordered to deaf ears, alas! to praise the bridge o'er which they pass;" in short, "they damn it when they're over." I have hopes and a belief, and am thoroughly convinced, that a brighter and a better day is about dawning on the "Cardiganshire Mines."

As I am now writing, through the window I have a full view of the machinery of the late Bwlch Consols, where in my younger days all was activity and full of life. At the time I allude to they were returning from the boundary between it and Goginan, from ground about 80 fms. long, 130 tons of lead ore monthly. This was from the Goginan vein, or what in this grant may be termed the north lode, and only at a depth of 25 fms. under adit, or 40 fms. from surface. Since then the south, or the Poultrheneid lode, has been worked for some years, and gave a return of 50 tons per month. Also the middle lode, which branches off from the main lode at a distance of about 70 or 80 fms. from the western boundary, opened out excellent courses of ore, and returns were made from it for some years equal to 50 tons per month, so that if the mine had been worked by opening on the three lodes simultaneously, a return of at least 200 tons per month could have been won. I shall not attempt here to show or to go into particulars as to why this was not done, but will merely point out that when the mines are again worked, as I have but little doubt will soon be the case, proper arrangements for concentrating the work on the three veins before alluded to should be made. The deepest point of the workings has not yet reached the most productive point of the vein westward where worked in Goginan, and if they were carried down for 100 fms. deeper they would undoubtedly pass through much richer deposits of ore than they have yet done so near the surface. Such was the case in Goginan, and why not here? In addition to all this, I am thoroughly convinced that the greatest and richest portions of the vein have been left standing from the 45 downward, and this is not my opinion only, but the opinion of many a good miner who worked there.

If a working capital of 10,000*l.* were raised, the machinery put in good repair, as well as the old workings and the shafts secured, and the mine thoroughly opened out, there can be no doubt in the mind of any unprejudiced or unbiassed person that a profit of 1000*l.* per month is within grasp, and could be obtained in 18 months with a vigorous and energetic management.

*Goginan, July 2.* ABSALOM FRANCIS.

## THE LLANRWST DISTRICT.

SIR,—After what has been said about this district by Mr. Watson and Mr. Lamb, it may seem to some of your readers a piece of presumption on my part to attempt any further description. Well, let them think so if such thoughts will increase their happiness. I may be allowed, however, on the outset to say that I have too much to do, and care too little to trouble you and bring my name before your readers, to write merely for the sake of writing.

Perhaps there is no district which combines more objects of interest than this, and I can scarcely imagine how any man could spend a few days here without feeling fully satisfied that his time has not been spent in vain. Be he a poet, here is something equal to the broadest stretch of his imagination, even in his most gifted hour; be he an artist, the shades and tints, and endless variety of hues delicately painted by the silent hand of the vernal spring, from the valley to the mountain top, and as far distant as the eye can reach, form subjects the most enchanting that his ingenious mind can conceive, or his skilful hand with the richest pigments portray; be he a geologist, he will read on the rocks and reefs where laid bare by the softer beating of the rain drops, or the harder blow of the miner's pick that there lay concealed vast stores of glittering treasure; be he a mineralogist, not only specimens shall he find, but rocks of solid lead that defy his strength to lift them; or be he a capitalist seeking a place to invest his accumulated gold here he will find safe security, only let him be careful that his money finds its way into the mines instead of into some promoter's pockets. Some, perhaps, may look upon this as an attempt at painting an ideal picture—a stretch of the imagination—"the baseless fabric of a vision." If there be any of your readers so incredulous as not to believe except in the evidence of the senses, let them come and they will find no want of such testimony as the slowness of their hearts to believe demands, for whether he goes to Clementina, D'Eresby Mountain, Vale of Conway, Llanrwst, White Cliff, or Pencraig, his prejudice, if he has any, as well as his incredulity must yield to the overwhelming evidence which meets him at every point. I propose in this present letter to make a few remarks on those mine with which I am more directly connected, and in so doing I hope that no one will think that I wish to depreciate any other miner or mines by not speaking of them, and my object in speaking of the undermentioned is not for the sake of inflating them with airy words, as they have in themselves elements too palpable to allow them to collapse, and not only so, but which are calculated to distinguish them as mines of wealth, and worthy of the men who floated them.

When I reported on Clementina and D'Eresby Mountain in November last, there were some who thought that my conclusions were built on faulty rather than on the principles of inductive science; but since then they have seen, through the medium of the Journal, the result of six months' operations, and surely their minds must be very much disabused. Hitherto the Clementina has exceeded my predictions. The shaft, which had been sunk for the most part through "dead" ground, and in consequence I made no promise of getting lead in sinking to the 35, has become productive of a good lode and from the appearance of the ground likely to continue. The 25 end, although then poor, as I predicted it would do has become worth 1 ton of lead per fathom, and the ground very moderate for driving, and far more congenial than in the shallower levels for the production of lead, showing that depth adds to rather than detracts from the lead-producing nature of the formation. Such results could not have taken place at D'Eresby Mountain, because not so much has been done; but the result of our operations show that I was fully justified in writing what I did.

The Vale of Conway promises to rank with the best mines in the district, if not in the Principality. It is only since the early part of April last that we commenced operations, and in the course of a short time we shall have a parcel of lead in the market which has been raised in such a pure state that the greater part simply wants breaking down to the proper size. About the same time that I first reported on the Clementina I made some remarks in the Journal about this mine, and some of my friends advised me that I should spoil my reputation as the language I used was very strong. I am glad to say that I see no reason yet to recall anything that I said, for better results could not be anticipated in so short a time. Although as yet we have only commenced working on two lodes, yet there are several others equally promising which can be wrought on for many years above adit levels, thus saving costs of hoisting and pumping. There is one large lode running the entire length of the sett, which, before the discovery of the Rabbit lode, was looked upon as the main back bone of the property, from which thousands of pounds worth of lead must have been raised, and the ore was followed down as far as their appliances would allow them. This will, after we have got the mine into proper working order, be attacked also, which will add, if it yields as it promises, to the returns of lead and the increase of revenue.

I will not now occupy more of your space, but at some future time I hope I shall be able to give your readers some account of the mineralogical phenomena of this district. JOHN ROBERTS.

*Vale of Conway Lead Mines, June 27.*

## DERWEN DEG AND HAFOTY BACH COPPER MINE.

SIR,—Since my last letter on this subject, which appeared in the *Mining Journal* a short time since, but little seems to have been done; however, on Friday last a party of engineers, gentlemen, and workmen visited the mine, and after going over every inch (it is said) of the property, returned abundantly satisfied with the discovery. Amongst the party I noticed Messrs. Plant, Nancarrow, Morris, Boundy, Bradly, &c., who have now fully satisfied themselves and friends as to the great value of the discovery. The old men who have taken a little off the top of one of the lodes have done so little as to render it a matter of surprise where the quantity of ore disposed of by them could have come from. Truly there are great advantages at this place for the very fortunate owners, there being but little water, good roads, near a first-class shipping port and railway station. I send herewith a copy of a report which I have been fortunate enough to obtain, and which I should feel obliged by you inserting in the Journal. I may add that there is not the least doubt that in a short time this rich mine will be in full work. MINER.

*Conway, North Wales, July 3.*

SIR,—I have had charge of this property for many years, and have had ample means of viewing it over and over again, and of bringing my experience to bear upon it; with all that I have been able to gather from true analogy, I have no hesitation in saying that it is a great mine, and a great bargain in the sum of 40,000*l.*, which you appear to have asked for it. For whilst I admit the sum in question is a large one in itself, and a sum of money not to be trifled with, I maintain that even that great sum falls into comparative littleness when compared with such a vast amount of prospective value as is here definitely assured on the firmest cut open by level after level, and where not a shade of speculation remains, and where, therefore, both vendor and purchaser can estimate the value to the greatest nicety. I speak thus assuringly, because so far as I have been able to gather from the history of copper mining at large, such surface outcrop appearances have never failed to pay very large interest on such a sum as is now in question. Whilst there are many instances where much less strength of discovery have led to the realisation of hundreds of thousands, and even millions of net profits.

The formation is lower silurian in junction with igneous rocks, the latter occurring on and within the limits of the property itself, thus showing geological characteristics of a very high order, and a relative position among the most assuring both for permanence and richness, being an exactly similar situation to that of the greatest discoveries in copper, both at home and abroad. The quality of the copper ore discovered is a rich sulphuret, which when separated from its gangue gives a produce of some 30 per cent. of fine copper, the comparative richness of which may be seen from the fact that the average of the three kingdoms does not exceed 10 per cent., whilst that of Cornwall and Devon does not average a yield over 7 per cent. of fine copper. It is well known that the fine sulphurets are always in great request among the copper ore buyers and consumers, as has been evinced in the purchase of the ore already sold from this discovery, though it has been but very imperfectly dressed, through the want of the necessary ore dressing appliances.

The matrix consists principally of copper gossan, ferruginous quartz, and an extraordinary rich run of copper ore (as well as a surface outcrop), occurring relatively under the most favourable conditions for greatly increased richness and depth. As the lodes and junctions, in make, character, and situation, strengthen in richness and composition, and show data upon which it is safe to infer that the origin of these lodes and their prolongation must be seated amid the said igneous strata referred to, which dip towards this range of outcrop discovery, and which have unquestionably had much to do with the origin of these lodes and junctions, and consequently the main courses of ore (as yet laid upon) lengthens, strengthens, and increases in richness and bulk of yield, perceptibly with every few feet of increased depth as yet attained in the 18 fms. (or so) already wrought, with all the other features (without exception) in harmony with the general produce, and the future assured courses of ore so clearly and definitely indicated, beyond the shadow of a doubt. The mine or discovery at present consists of two east and west lodes, and a north and south bearing lode, extending over some 400 ft. lineally. For about 160 ft. in length, the depth worked has been about 66 ft., and from which it is evident that a considerable quantity of copper ore has been extracted. Below this depth a stope has been followed down upon the richest part, where the run of ore increases in richness of yield, the present bottom being some 18 fms., below the surface outcrop.

In the southern opening of the discovery the north and south lode is seen intersecting and traversing another lode, bearing west some 30° south magnetic, of 20 ft. in width, richly sprinkled with copper ore At this junction, as shown by the stopes, and the unwrought junction in the 66 ft. level, a considerable quantity of copper ore has been extracted, the bottom as yet remaining whole and richly promising for future depth. At this point the east and west lode appears to be heaved some 80 ft. north, when it again takes off in its usual course. Amid those junctions the north and and south lode is rich for copper, and within this base line the principal body of copper ore yet discovered descends with great strength, and upon the line of which the bottom stope has been continued below the 66 ft. level, and which followed down will doubtless lead to yet greater and richer results to greatly increased depths. Some 80 ft. further north of the second junction the north and south lode also traverses a parallel lode to the one described, composed of cupel and sprinklings of rich quality copper ore, about 12 ft. wide, and dipping north-west; this lode has has not been laid open to the east of the intersection, but that it will be found and heaved similarly is highly probable, and prove a lode of great value in depth. Some 200 feet further north a surface cross-cut has laid open the north and south lode there for a width of 54 feet, showing a richly mineralised body throughout of immense promise and assurance, of a rich and large yield in depth. On its western side the mineral composition of the outcrop strongly indicates lead-bearing qualities. In this massive junction are found sprinklings of both galena and copper pyrites, on the whole constituting a massively rich mineral that cannot fail to prove of great commercial value in depth, as on the face of it there is every proof the miner covets for deep seatedness.

The sett is a good part of a mile in extent, carefully selected for the run of the lodes, consisting of parts of Panol-Gwyn, Derwen-Deg, Gwern Fechana, Hafoty Bach, and Tan-y-Bwlch, the whole of which mineral lands show a strong mineral nature throughout, and traversing the entire sett the metalliferous indications are most remarkable. The point of the present workings lies in Derwen Deg. A rich mine has long been known to exist in this property, but has been much hindered working owing to legal matters which are now settled. Two good roads connect this mine with the seaport and railway depôt at Conway, and flats laden at the wharf have easy access to the smelting works at Amlwch, Swansea, and elsewhere. I estimate that an additional 3000*l.* judiciously laid out in the development of this property would render it self sustaining and dividend-paying, the latter much increasing every six months; and with such well-marked features and richness and strength of lodes and junctions, this mine should at least pay from 15,000*l.* to 20,000*l.* net profits per annum for the next 25 years, and hence the clearly assured prospective value of the property. ROBERT MORRIS, Mine Agent.

*Llandudno, May.*

[For remainder of Original Correspondence, see to-day's Journal.]

MANUFACTURE OF ILLUMINATING GAS.—The improvements invented by W. YOUNG, of Clippens, Renfrew, consist in producing or inducing the decomposition or destructive distillation of the coal, shale, hydrocarbon oil, or other substance used for the production of gas by causing a rapid agitation or circulation of the volatile products inside the retort or other distilling or decomposing vessel, either by means of mechanical pistons, or by the agency of jets of compressed gas, steam, or vapour, with the object of bringing about a more regular and equal decomposition into permanent gas of the elements of the coal or other substance, and in some cases in increasing the volume of gases by the decomposition of steam or vapours employed to produce the current, and also by blending, or combining, or carburetting the gases injected (to produce the current) whilst in rapid agitation or circulation in contact with the products of decomposition. The invention also includes improved means or methods of producing a rapid separation of those condensible hydrocarbons from the crude gases which it is desirable to remove in the liquid form, and at the same time retaining in the gases the vapours of the hydrocarbons, which are valuable for imparting to the gas a high illuminating power. This is accomplished by causing the gas to pass through narrow passages kept heated, these passages being preferably of a tortuous nature, causing the gas to impinge or flow alternately from side to side, or by causing the crude gases to impinge in narrow or minute streams against the heated surfaces, or alternately the crude gases themselves may be first highly heated, and then passed through narrow passages, or impinged against surfaces whilst in this heated state.

# Meetings of Public Companies.

## ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY.

The half-yearly general meeting of shareholders was held at the offices of the company, Finsbury Circus, on Friday, June 29,

Mr. PHILIP F. NEEDHAM in the chair.

Mr. H. G. DENNIS (the secretary) read the notice convening the meeting. The report and accounts were taken as read.

The CHAIRMAN said, before proposing the first resolution, he wished to make a few observations as regards the position of the mine and its prospects for the future. No one could regret more than the directors the result of the half-year's working, ending on Dec. 31 last. The loss which had been sustained had arisen in a great measure from the diminished quantity of green ores produced from the upper workings, and the diminished quantity of black ore raised. It had also arisen from the amount of money which had been spent in the explorations which were being carried on, which had been taken out of the ores raised from the Mina Grande principally. The cost of getting the ore had been in excess of what it was last year. But since the date of Mr. Breach's report and the accounts had been made up he was very happy to say that they had been receiving each month better accounts from the mine, and the result of the five months' working of the present year was a profit of $5000, as compared with a very serious loss in the previous half-year, which, as shown by the accounts, amounted to 5185*l*. As regards the management of the mine, for more than a twelvemonth past stringent instructions had been sent to Mr. Breach to economise in every possible manner the expenses at the mines, and that had been done, and the expenses had been brought to the minimum point, so much so that the English officials out there found their time fully occupied in getting through the work. He need hardly say that on this side the strictest economy had also been put into force, and the home expenses had been reduced as much as they possibly could be. As the shareholders were probably aware the directors had given up half the remuneration to which they were entitled. They were doing all they could to husband the resources of the company, because it was actually necessary now that all their efforts should be exerted to develope the different parts of the Tirito, Mina Grande, and Dios Padre Mines. If the meeting would permit him he would now refer to the latest information from the mine. The first mine referred to was the Dios Padre, and writing on May 10 Mr. Breach said—

I have transmitted the following telegram to Messrs. Cross and Co., to forward:—"West cross-cut, Dios Padre, at the tunnel level, is producing good green ore." In the Dios Padre Mine, in the west cross-cut, where stones of rich ore were found in driving, we last week commenced proving the back of the level a little; some very good green ore has been broken, but it is not at all solid, nevertheless it slightly improves as we rise, and sufficient has been broken to pay expenses. To make sure on this point I am going to have the week's produce kept separate, and the cleaned ore weighed and assayed. Among the stones of green ore are interspersed stones of black ore, lead ore, and pitanque. Should the ore prove as rich as other Dios Padre ore we may anticipate a good result, on the whole, even if no improvement takes place. The tunnel end is now under the shaft (Capt. Clemo, in his letter, gives the distance as per last Saturday's measurement), and we shall square out the size of the shaft for rising.

And on May 17—

The ore from the Dios Padre pays the expenses of exploration, and as that is the case we shall continue working there, and should the rise not improve, try underfoot.

The next was Mina Grande, and on May 10 Mr. Breach wrote—

You will note by Capt. Clemo's letter that a new vein of ore has been cut in the Mina Grande. From indications we were led to cross-cut from the winze in the tunnel level (to the 12) westward, and have cut through a branch of fair black ore, from 7 to 8 ft. wide, and very solid; as this is to the west of any ore hitherto found, should it prove to be a continuous branch, it may be valuable; it is also to the south of any ore previously discovered in this mine. At present, as the ore has no defined walls, we cannot take its course, but should it, as is fair to suppose, hold the same as the main body of ore, it will go far to the west of the Balvanera shaft. We shall commence to drive on the ore at once, as although it will be more expensive to break ore from this place for the furnace than from the stopes already opened, it will be opening up more ore ground, and should the branch prove of sufficient extent to warrant the erection of another furnace, we might at once commence building instead of waiting to drive the 24 fm. level, to convince ourselves of the prudence of incurring additional outlay for lixiviation works. The new vein may give us a double chance of finding ore in the 24. I said nothing of this ore in my telegram for fear of its not proving of sufficient value on being opened out.

And on May 17—

The new branch of black ore cut in the Mina Grande promises well, and is very solid, but hard driving.

That was the latest information received from that mine. The other mine referred to was the Tirito. On May 10 Mr. Breach wrote—

Tirito 10 fathom level: The taking out of the arch in the back of this level is now finished. We have now commenced to work on the arch left above the old tunnel in front of the engine-shaft, between the old north and south stopes; here we have some very disordered but very good branches of green ore. This arch is about 30 ft. long and 20 ft. thick.—10 fm. level north: The winze sinking in this level has no change to report.—20 fm. level: The rise in the back of this level has improved for ore in the past week.—54 fm. level: The cross-cut in this place advances favourably; nothing yet to report. The engine-shaft sinking below the 54 has no change to notice; the ground sunk last week was 3 ft. 3 in.—that is, 3 feet below the 54.—The new east lode 5 fms. below the tunnel level: The lode in the drift north from winze is 5 ft. wide, but very poor. We have now begun to stope from the side of the winze, and over both north and south drifts; the bunch in this place is 20 ft. long, by 5 ft. wide, of fair quality ore.

And on May 17—

Tirito: The stope in front of the engine-shaft over the tunnel level produces very fairly.—10 fathom level north: The winze in this place is now communicated with the rise in back of the 20.—20 fm. level: We have now begun a stope from the north end of the rise, which is turning out a fair quantity of red, green, and black ores.—54 fm. level: The cross-cut progresses favourably, and shows spots of green ore on the face of the end. The engine shaft sinking below the 54 has nothing new to report. The ground sunk last week was 2 ft. 9 in. The shaft is now 5 ft. 9 in. below the 54. The lode in the stope in the new east lode, 5 fathoms below the tunnel level, is still looking well.

This was the last news from the mine, except a telegram announcing that the profit for May was $2000, making $5260, or about 1000*l*., profit for the five months. It would be seen that they did not anticipate any further receipt of black ores, at all events for the present, as the process of lixiviation was working very well, and should the new discovery in Mina Grande prove of importance a fresh furnace would be erected at a moderate cost, from which good results might be anticipated. Nothing had been placed to capital except the sinking of shafts; all the other operations had been paid for out of what had been raised at the mines. There was now 300 tons odd of ore at Swansea actually sold, but the money had not been received yet; with the proceeds of this sale there would be sufficient funds in hand to carry on the operations so far as could be seen at present, as the utmost economy would be practised both here and at the mines. They did not expect any more black ores to be shipped, as the process of lixiviation worked better than sending over ores of poor ley. The debenture holders had unanimously agreed to postpone the first drawing for one year. The steamer Providencia was employed in other work when she had not any ore to carry. It was absolutely necessary to have this schooner, but the Tirito, which was a kind of lighter, had now been disposed of. In conclusion, the Chairman moved the adoption of the report and accounts.

Mr. W. MARTINEAU, M.I.C.E., seconded the motion.

Mr. H. SWAFFIELD, while feeling disappointed with the results of the company's operations during the half-year, thought it satisfactory to find that they had now apparently entered on better times, as he gathered from a careful perusal of the report.

After a short conversation, the report and accounts were unanimously adopted.

The CHAIRMAN moved the re-election of the retiring directors, Messrs W. Martineau and T. B. Power.——Mr. KERSHAW seconded the motion, which was carried.

Mr. MARTINEAU, in returning thanks, said the recent reports all tended to confirm the idea he had expressed on many former occasions—speaking from some knowledge of the subject—that the company had a true fissure lode, and that it was from a series of ill-luck that they had hitherto come upon a succession of bad points; and he believed that the lode would continue to yield good deposits of ore throughout. Then, again, the new lode in the Mina Grande pointed to a better future than was anticipated six months ago; and at the 54, in the Tirito, the result of the cross-cutting, which would soon be known, would, he believed, be favourable. Of course, there was no knowing what the result of all this would be, but there was certainly a fair chance that the mines would be successful yet.

On the motion of Col. WILBRAHAM, seconded by Mr. MILLS, the auditors, Messrs. J. Waddell and Co. and Mr. H. Swaffield, were re-elected.

Mr. WILDE proposed a vote of thanks to the Chairman and directors.

Mr. KERSHAW seconded the motion, which was carried.

On the motion of Mr. CROKE, seconded by Mr. WEIR, a vote of thanks was passed to the debenture holders for having postponed the drawing for one year.——The proceedings then terminated.

## ECLIPSE GOLD MINING COMPANY.

The fourth ordinary (adjourned) general meeting of shareholders was held at the offices of the company, Finsbury-circus, on Wednesday,

Mr. R. U. POTTS in the chair.

Mr. F. R. BLUETT (the secretary) read the notice calling the meeting. The report of the directors was taken as read.

The CHAIRMAN: Gentlemen, I am sorry to say I can add very little to the long report which you have received. You will see by that report that the returns from our mine have not been satisfactory—that is, the amount of gold obtained has been nothing like what we expected. Still, we consider the intrinsic value of the mine very good, and have hopes that before long, under careful management, we may have good returns. We received from California a number of unpleasant telegrams during the past fortnight the whole of which you would possibly like to hear read. The last one was also of an unpleasant character; it was—"Hopeless without money." We have had an interview with some of the principal shareholders, and I am glad to say that the amount required—$4000—was subscribed by the directors and some of the principal proprietors, which was wired out that very afternoon to San Francisco. Since then the directors had not heard anything. Strict injunctions were given by telegraph that the money was not to be used except by its means the mine could be be preserved, and there would be no forfeiture. We shall require more money. There is no doubt that Mr. Hulbert, our friend here, has great confidence in the mine, and has promised to come forward and let us have a good deal of money. He has promised at intervals of three months to pay more money.

Mr. JOHN HULBERT: To "subscribe" more money.

The CHAIRMAN: Certainly; no one will for a moment suppose that you are in debt to the company. But it is not to be supposed that Mr. Hulbert has to find all the money, and therefore we shall be pleased to receive subscriptions from any of the shareholders. I think most gentlemen, with the exception of two or three, are unacquainted with Mr. Hulbert. I will, therefore, introduce that gentleman to you, and he will give you an account of what took place during his visit to California, and any question you may put he will have much pleasure in replying to. I beg to move the adoption of the report.——Mr. S. J. WILDE seconded the resolution, and in doing so said, with respect to the money which had gone out, it had been placed in the hands of a lawyer there, who had the credit of being one of the most honest men in California; therefore, the shareholders might trust that gentleman not to waste it, but to employ it to secure the mine.

Mr. J. HULBERT said he would give a sketch of what he had done since he left England. As the company had a dispute with Capt. Eudey, the former manager of the mine, which the directors hoped to settle in an amicable manner, he would not travel out of the main subject by referring to Capt. Eudey more than was necessary, as he might use language which would give him umbrage, and the less said the better, as there was the matter pending which he hoped would be settled satisfactorily. When he (Mr. Hulbert) first went to America his instructions were to see Mr. Johnson, an attorney, and to ascertain first of all the position of the company. As regarded the patents, until any property in America is secured by patent it was considered unsafe—that was to say, it might be jumped, whereas if a patent were secured it was considered safe against any effort of that kind. Mr. Johnson impressed upon him the great importance of making that his first business, and by a fortuitous circumstance it happened Mr. Reddy, who was one of the vendors, was in San Francisco, and he obtained an interview with that gentleman, and pointed out to him that there had been considerable delay, and the company were anxious to have the patents. Mr. Reddy informed him that he had a patent for the 160 acres of land on which the homestead, the buildings, mill, and a considerable portion of the tramway were situated, and also a portion of the ditch or canal, and they had been secured in the name of Capt. Eudey, the late manager. Mr. Reddy also informed him that as regarded the mine delay was caused by the want of some necessary papers, but he hoped to find the man, who had absconded, in a few days, if not he would get fresh copies of the papers, and the mine would be handed over, and as regarded the company, it was not to agitate itself, as there was the agreement signed by Mr. Reddy that he would get a patent, and the company did not pay any interest after a certain time for the money which was still owing, because when the patent of the mine was handed over they would have to pay the balance of the purchase money. On that he went to the mine, and his first conversation with Capt. Eudey was with regard to the patent, and Capt. Eudey agreed to go to Independence to transfer the patent from his name to the company. After some little trouble the transfer was effected by his paying out of his own pocket a certain sum of money to Capt. Eudey. He was happy to say the patent was all right, and no person in the world could contest it. It was granted to Capt. Eudey. A patent could not be granted to an alien company, but it could be granted to a citizen of America, who could transfer it to whom he pleased. His next step was to consult with Capt. Eudey as to how to make it a paying concern, and after a long consultation he thought he should be justified in making a certain outlay, which he would explain fully. When he went there, although the mill itself had 30 stamps, yet there were only 20 stamps in a condition to work, and those were inefficient, as they wanted electro-plates laid down. Now, at the time he went there the water from the mill was tolerably fair, that was to say, the water would turn the 20 stamps for two or three days, and then there would be a little lack, and Capt. Eudey would send a person to stop up any gaps, and they could run the mill another two or three days. But the tramway was not satisfactory, it wanted repairs, and the rolling stock was not satisfactory, and almost every other day some of the cars would run off the track, which of course entailed extra expense in repairs. He made a calculation with Capt. Eudey that if they made certain repairs to the mill and to the tramway, and got more rolling stock, they might expect to pay for them out of the profits of the working in two or three months; but unfortunately soon after that the tramway went from bad to worse, and they were obliged to make a suspension of work entirely, and put the tramway and also the ditch or canal into good working order. When there was a leakage in the ditch Capt. Eudey had been in the habit of sending a man with sacks to stop up the gaps; he did not say that Capt. Eudey was wrong in adopting this temporary expedient, but the result was that the whole collapsed just at that time, and it would not do to adopt a similar plan in future. The result of his endeavours was this—that when he left the tramway was in very fair working order, they had cars running which would bring down 30 tons of quartz per day, and in the ditch itself there was a sufficient body of water to drive 30 stamps, and the mill-house was so fitted up with self-feeders and other new improvements that he had no hesitation in saying that there would be no difficulty in crushing something like 700 tons per month. He took that as a minimum. Now he would deal a little with the future prospects. The statement of last year's proceedings was not so bad as might at first sight be imagined, because they must bear in mind this—that Captain Eudey only worked the mill for five months, and the consequence was that they had the proceeds of five months against one year's expenses. Of course, in a concern like this the fixed charges were heavy. He merely pointed that out for the consideration of the shareholders, but it was a positive fact that for the last three months of the year—for October, November, and December—Capt. Eudey got quartz from the mine which realised 2*l*. per ton gross. Now, he was sure he was not overstating the case when he said that, as the mill could crush 700 tons per month at a cost of 1*l*., that was 700*l*. per month, and, assuming that the ore was as good as it had been during those three months, it would leave a profit of 700*l*. per month. But he would make a very large deduction for contingencies, and say it would only realise one-fourth of that result; even then they would get enough to pay interest upon the debentures and 10 per cent. upon the shares. Now, there was another very important fact which he could call attention to, and it was this—that up to the present time the whole of the quartz which had been crushed was not what was called containing free gold; it had a large quantity of oxide of iron, and had a rusty and peculiar look. It was out of that kind of quartz that Capt. Eudey had obtained 2*l*. per ton gross, but in sinking shaft No. 5 there were indications of free gold, and he thought there was every reason to expect that the quartz which would be crushed now would pay a larger profit. However, facts were facts, and he only wished to make his calculations upon facts, and he was sure he had made a very moderate estimate. But there were stronger proofs of the value of the property than those which he had adduced, and one proof was this. Capt. Eudey, whom the company had some dispute with, claimed from the company a considerable sum of money, and in a letter received a few days ago Capt. Eudey stated that if the directors of the Eclipse would allow him to work the mine for three months he would pay all expenses, and give the company a receipt in full for all his demands upon it. Capt. Eudey had a brother who resided there for some time, and after he left he addressed a letter to a friend of his (Mr. Hulbert), in which he stated that the Eclipse possessed ore profitable enough to be reduced, and that good business management alone was required to make it profitable, and there was a great future for the company in the water-mill and tramway franchise when associated with other mineral properties in the vicinity. Now, he would explain what that latter phrase meant. The shareholders must remember that there was a range of mountains extending many miles from this property, and there were mines containing very rich ore, and when he was there some of the owners of those mines came and said, "Now if we bring down the pick of the quartz (which was done on mules) at what percentage would you crush it for?" That was what Capt. Eudey meant when he said they had a valuable property in the mill alone, even without the mine. If the company were to let it be known that they were prepared to crush ore at a certain percentage of the yield, they would be sure to get constant employment for the mill—at least that was his opinion. There was still another very strong proof of the value of the property; they never heard of a robber being tempted to attack a house containing nothing, but generally a house where it was expected to find gold or silver, and so it was in the case of this mine. He had no hesitation in saying that one attempt, which he had frustrated, would never have been made were not the mine a valuable property. Some time ago he met with a gentleman who was unknown to him, and to whom he also was utterly unknown, and the gentleman said he regarded the Eclipse as a very valuable mine, and that was the opinion of people for 50 miles round. He had not heard that from two or three persons, but it was the general opinion. Now with these facts staring them in the face it appeared to him that it would be exceedingly unwise now that the shareholders had fought the battle and almost the victory, that they should now, just for the want of a little more outlay, fail to secure the fruits of their labour. (Hear, hear.) He himself had a very large interest in it, and he was sure the Chairman would bear him out when he said that he had done and would do more than his proportion simply on this account, that he knew the property, and knew that the real value of it was certainly over 40,000*l*., because they must bear in mind that the old company spent 120,000*l*., and he was sure of this, that the work which had been done, and done judiciously, could not be accomplished under 60,000*l*. or 70,000*l*. They must bear in mind that the mine itself was sold for 30,000*l*., and then for 60,000*l*., and now when so much had been accomplished it did seem a great pity to lose the fruit of so many years expenditure and anxiety of mind. He had given the shareholders a true and faithful statement of the present position and future prospects of the mine; he must say that he had not exaggerated, but had understated facts. He should be happy to answer any questions, but he would ask them not to ask any questions with regard to Capt. Eudey under present circumstances. He would say, in justice, that Capt. Eudey had sent in his resignation, and was not dismissed. That resignation he (Mr. Hulbert) was compelled to accept, but he hoped that in the end matters would be arranged satisfactorily.

The CHAIRMAN read the letter of Capt. Eudey, referred to by Mr Hulbert, in which Capt. Eudey had offered to work the mine four months, pay all costs, and give the company a receipt in full for all his demands against it. He went on to say that the directors thought of sending out to the mine Mr. Rickard, a gentleman who understood mining thoroughly, it having been his vocation many years, and with whom the board had the very best testimonials, and Mr. Rickard was very willing to go and give his report upon the mine, look into the accounts, and put the whole affair in working order. Moreover, Mr. Rickard was willing, if the directors so decided hereafter, to enter upon an arrangement to remain there. He had been for many years within 50 miles of the mine, and had been a manager in the district; he also understood assaying, and would know exactly what the ore was worth. It appeared from a telegram that they had struck rich ore in the mine, and Mr. Rickard would assay it, and let them know what it was worth.

A SHAREHOLDER: When will he go out?——The CHAIRMAN: Almost immediately we have got the money. We have no money at present to send him out.

Mr. ATRELL asked what amount of money the directors proposed raising?

Mr. HULBERT said they proposed raising an amount not exceeding 5000*l*. He gave some details of the liabilities of the company, and went on to remark that he had no hesitation in saying that there were many companies in San Francisco whose capital figured at 100,000*l*. which were not worth so much as this company. They must bear in mind that the present capital of this company was 10,000*l*. in shares and 5000*l*. in bonds, so that the amount to pay dividend upon was very small. He again referred to the tramway, and said that no doubt many tramway companies in England had paid thousands of pounds for the construction of such a tramway. Again, the company had the first claim upon all the water in Owen's river, and as the district becomes more populated of course those water rights would increase in value. There was no doubt that in a short time the railway would be carried from Wahani to within a mile or two of this company's property. It had been discussed for two or three years, and when he was there there was a meeting of the citizens of Independence, and he believed that the line would now soon be commenced. In America a branch line of this kind was very inexpensive. The owners of the land were greatly in favour of it, and he should be disappointed if the line was not commenced next year.

The resolution for the adoption of the report was carried.

The CHAIRMAN proposed that the retiring director—Mr. John Hulbert—be re-elected.——Mr. S. J. WILDE seconded the resolution, remarking that Mr. Hulbert was the largest shareholder, and was prepared to put a good deal of money into it. But of course Mr. Hulbert could not do all, but must have some help from the shareholders.——The resolution was put and carried.

Mr. HULBERT acknowledged his re-election.

On the motion of the CHAIRMAN, seconded by Mr. J. H. TAYLOR, Mr. Westcott was re-appointed auditor.

The CHAIRMAN said the only thing which now remained to be done was to raise the necessary money, and suggested if the gentlemen present would put down their names for the amount they were willing to subscribe, it would be an encouragement to the other shareholders. The money would not require to be paid at once, but at intervals of three months.

Mr. HULBERT said there would be no difficulty whatever in selling the property to persons in San Francisco, if the necessity arose for so doing, for much more than the amount of the present share capital and the debentures. As far as his judgment went any person advancing money upon these debentures would find it a lucrative speculation, and would also assist in making the shares more valuable.

The Chairman then headed the list with 100*l*., Mr. Wilde with 100*l*., and the Chairman stated Mr Hulbert was going to pay 200*l*. in a few days, having already paid 300*l*., and Mr. Hulbert would pay 900*l*. more in the course of the year.

Mr. HULBERT: The property is worth four times as much as the money invested. He believed that 12 months hence those gentlemen who had not subscribed would regret that they had not done so.

A vote of thanks to the Chairman and directors closed the proceedings; and it has been stated since the meeting that the sum of 750*l*. was subscribed for in the room.

## BOLIVAR RAILWAY COMPANY.

The fifth annual general meeting of shareholders was held at the offices, New Broad-street, on Monday,

Mr. JAMES ANDERSON in the chair.

Mr. T. G. GILLESPIE read the notice calling the meeting, and the report of the directors was taken as read.

The CHAIRMAN, in moving the adoption of the report and accounts, said it would be expected, and perhaps expedient, to say a few words *en passant* relative to the New Quebrada Mining Company, as the interests of both were so intertwined that what affected one more or less affected the other. After the loss by death of Prof. Forbes, the consulting engineer of the company, it devolved upon the directors to appoint another gentleman in his place; and, after a good deal of consideration and consultation, they decided, with the full concurrence of the shareholders, to appoint Mr. Darlington, a man pretty well known, he believed, in the mining world, and it was considered important, in the interests of the Quebrada Company, to send Mr. Darlington out, in order that he might personally inspect the mines, and locally, and determine upon the best and most economical means of developing them. Mr. Darlington went out, and spent a little more than a month at the mines, and since his return to this country had issued a report, which he regretted to say had caused on the part of shareholders at New Quebrada Company rather a depressing effect. No doubt it also, in some degree, disappointed the directors, inasmuch as they had hoped there was an abundance of ore of a very superior quality to send home to enrich the shareholders of the New Quebrada Company. He could not say, speaking personally and for himself, that he was so much disappointed; he was a little at first, he must confess, but after considering the report very fully he could not see that it should have that depressing effect. (Hear, hear.) Mr. Darlington estimated (very roughly, he believed) that the quantity of yellow ore was something like 70,000 or 80,000 tons—that, as he had said, was a very rough estimate—and of the ruby ore something like 10,000 tons, that being also very roughly estimated; and Mr. Darlington stated in his report that the annual output of ore for the next two or three years, under a system of regular and good working, might be rendered so as to approximate to the 20,000 railway tons, which would fully fulfil the contract of the Quebrada Company with this company. With regard to the development of the mine, Mr. Darlington said—"In a lode of such exceptional depth, and so largely charged with mineral, it is not only possible, but in a degree certain, that it contains further deposits of ore in its extensions, but particularly towards the Titiara Mine." For his own part, he (the Chairman) said he felt very confident that, by the time they had exhausted the quantity of ore in the mine, roughly estimated as ready for extraction, there would be plenty more ore laid open. In their report the directors stated that the line had reached La Luz from Tucacas, which latter was the seaport and La Luz the station on the line, and that "it was taken over from the contractors on March 1 last, after having been formally opened on Feb. 8." The company had the honour of having present at the opening ceremony the President of the Republic, with a large staff of officers, and some of the most influential persons in the country, many of whom had since shown their appreciation of the line for the use of planters inland, and the development of the country. The company had taken over the line from the contractors to avoid complications which might have arisen, and also to bring the produce to the coast. According to the last advices, the line had advanced to within 1¼ mile of the terminus, so it would be seen that they were progressing very rapidly, and the engineer confirmed the opinion of the contractors that there would be no difficulty whatever in finishing the line by the end of August next. (Cheers) With respect to the traffic returns, a portion of the ore which was brought down at first was done under the supervision of the contractor, and at the expense of the New Quebrada Company, and it exhausted pretty well all the 4*l*. 5*s*., so the company did not derive much benefit from it, but it was considered of importance to both companies to bring down ore to show that it had existence. Since then 1500 tons had been brought down, a considerable portion of which had arrived home and been sold, and, after paying the railway and other charges, something was left to the good of the Quebrada Company. As regarded the general traffic, the directors were given to understand that in the district of Barquisimeto the annual produce of coffee amounted to 70,000 or 80,000 quintals, a quintal being about 100 lbs.; the company was late in the field, for the transport from the interior was far advanced when the line was taken over; nevertheless, up to the date of the report, the railway had brought down 1300 quintals of coffee, and later advices stated they had brought 1800 quintals in all, with a considerable quantity still at La Luz, so that Mr. Downes' expectation of the quantity, which was 25,000 quintals, would probably be realised this season, and the directors had every confidence that in the next season the whole of the crop of the district would come down by railway, which would amount to a considerable sum, because in the prospectus of the company it was never estimated that more than 4000*l*. of revenue would be derived from outside traffic. The construction of the railway had, however, encouraged traffic. He did not know how far they could get passenger traffic, but by the latest advices there was considerable grumbling that there was no accommodation for passenger traffic, but the fact was the directors were as economical as possible, and were making shifts for the present. The Barquisimetro was not the only district from which

coffee came; there was a district round San Felipe whence very large quantities came, and at the time Mr. Downes travelled to San Felipe he found large numbers of villages well inhabited, and large crops. The greater portion of the crop had gone to Puerto Cabello on donkeys' backs, which was done at a greater expense than if conveyed by railway, so that ultimately the crops from that district also would be sent over the line. As regarded the up traffic, there was no doubt the company would also have its share of that, because if the carriage down was monopolised by the company no doubt the up traffic would be also. He might mention that the company had purchased a small vessel to carry the traffic from Tucacas to Puerto Cabello. Having mentioned that he occupied the chair in the absence of Mr. Bowring, who was prevented by indisposition from being present, the Chairman concluded by moving the adoption of the report and accounts.

Mr. FRY asked whether there was anything in the report of Mr. Darlington which would lead to the idea that the quantity of ore was not sufficient to allow the carrying out of the contract between the two companies?——The CHAIRMAN said there was abundance of ore, as had already been stated, to satisfy the contract for two or three years; meanwhile, there were enormous quantities of ground of a most hopeful character, where there was every reason to believe that large quantities of ore would be found. No doubt the report of Mr. Darlington was a cautious and most conscientious report. He might mention that the general traffic would occupy four months of the year.

Mr. FRY said the reply was satisfactory. He supposed there would be traffic enough to make the vessel a profitable investment.——The CHAIRMAN said there was no reason to doubt that it would pay. It was part of the concession that a small boat should be put on between the two places. The cost of the boat altogether was about 460*l*.

Mr. FRY seconded the resolution for the adoption of the report, which was put and carried.

On the motion of Mr. RUSSELL, seconded by Mr. FRY, Mr. John Morrison was re-elected a director.——On the motion of Mr. A. ROUGEMONT, seconded by Mr. RUSSELL, Mr. James Anderson was re elected a director.——On the motion of Mr. MEADE, seconded by Mr. JEANES, Mr. Oakes was reappointed an auditor.

On the motion of Mr. FRY, seconded by Mr. MEADE, a vote of thanks was passed to the Chairman and directors.——The meeting then broke up.

## NORTH WHEAL BUSY MINING COMPANY

A meeting of adventurers was held, on Wednesday, at the Red Lion Hotel, Truro,—Mr. T. WOODWARD, the purser, in the chair. A financial statement for 18 months ending April showed a profit in favour of the adventurers of 447*l*. 1s. 3d. The agents say "From the present prospect we shall find plenty of good tinstuff to keep the two water stamps working for many years to come, and with a little better price for tin we could pay good dividends."

Capt. TREVATHAN stated, in reply to a shareholder, that they had at surface 6 tons of tin partially dressed, and some of the costs on that were paid.

The CHAIRMAN said the general bills were charged up to June, and the labour costs up to end of April. Those for May would be paid on Saturday next.——Capt. TREVATHAN added that he believed they had mineral enough at surface to pay all accruing debts up to the present moment. He was very confident in the future success of the mine, which he maintained was now one of the best in Cornwall.——In reply to Mr. Heard, the CHAIRMAN said the bankers' charges were made up to the end of 1876, and amounted for the year to only 10*l*. 10s.

It having been resolved that the accounts and the agents' report be received and adopted, Capt DAVEY proposed that a dividend of 1*l* per share be declared. He thought they were perfectly justified in paying this, considering the favourable prospects of the mine.——Mr. NICHOLLS seconded the motion, which was unanimously agreed to.

Several shareholders expressed an opinion that the dues (1-15th) paid to the lord were heavier than the depressed state of mining permitted their paying, and it was decided that this be pointed out to Lord Falmouth, and that his lordship be asked to kindly reduce them. It was further resolved to hold the meetings at the end of every four months in future.

## PERKINS BEACH LEAD MINE.

The ordinary general meeting of the shareholders was held at the company's offices, Bishopsgate-street, on Monday,

Mr. W. H. PERKINS in the chair.

Mr. R. C. SHARLAND (the secretary) read the notice convening the meeting, and the subjoined report of the directors was then submitted:—

The directors have much pleasure in presenting their report, indicating, as they believe it does, satisfactory progress. The mine came into the possession of the company under circumstances of a highly encouraging nature as to its future prospects. A large amount of money had from time to time been spent in its development, resulting in lead being obtained of the value of 35,0 0*l*. But the company which formerly worked it had not an adequate capital. It passed into private hands, and was so worked with considerable energy during a period of about 12 months, and in February last this company acquired it. At the time the company took possession considerable work was being done in the upper workings, but in the lower level, 70 fms. from the surface, it was not being carried on. The engine was, however, at once set to work, and kept going night and day to remove the water which had accumulated. This having been effected, the levels were put in thorough repair. Drivings were then actively commenced upon what was believed would prove valuable ore ground. As a result, considerable quantities of lead, both from the upper and lower levels, have since been raised and sold. The lowest depth of the mine is at this time 85 fms. Although much has thus been done to develope the mine, the directors are impressed with the fact that the results obtained are but small in comparison with those which may be expected at great depths. The adjoining mines of Snailbeach and Tankerville, whose principal lodes run parallel with those of this company, and are much deeper, have yielded from such lower workings enormous wealth. The directors, in view of the importance of this fact, have commenced sinking a new shaft. This will carry the workings 65 fms. below the present deep adit upon the great spar lode and the junction of seven lodes. When this has been accomplished the directors have full confidence in this proving a first class dividend-paying mine; such, too, is the opinion of local mining captains, and others of experience well acquainted with the property. The sum which it will be necessary to lay out upon the shaft and further development of the mine, including Lawrence's level now driven south 73 fms., and which will ultimately inter-ect the Tankerville lode, is estimated not to exceed 10,000*l*. The directors have determined to push on the work of development in all directions with speed, and hope to be able announce at the next meeting that much of this work has been accomplished, with remunerative results. A strong motive will also be found in the fact that they themselves are amongst the largest shareholders of the company, and, therefore, personally interested in a speedy and unqualified success. For the purpose of providing specially for this outlay, the board recommend that an issue of debentures be authorised to the amount of 10,000*l* bearing interest at 8 per cent., issued in sums of 20*l*. at the price of 18*l*., and redeemable in five years at par by half-yearly drawings, commencing January, 1878. These debentures will be secured by a charge upon the whole property and effects of the company, after the present mortgage to the vendor, amounting to 2350*l*. Since the statutory meeting in February Mr Thomas Saunders, J.P., has ben elected a director of the company, and his election is now proposed for confirmation.

The CHAIRMAN said: The report which has just been read gives so clearly the past history and future prospects of the company that really little remains for me to say, particularly as at this busy hour of the day many business gentlemen present, whose time is valuable, may be anxious to get away to give attention to other engagements. I may state that the directors have given their constant attention to the work of developing the property, and feel every confidence in the ultimate result. They are not only the largest shareholders, but have visited the mine, above ground and below, to thoroughly satisfy themselves in regard thereto. Their investigation has in no way weakened their previous estimate of the value of the property. The directors have after five months' work, and being as thoroughly assured of the wisdom of the step as it is possible to be in regard to any mining enterprise, determined to sink the new shaft, which shall bring us those riches which we feel justified in looking for, and have every reason to expect will be realised. It will, of course, take much time and much money to sink this shaft, but then we cannot look for results like those of the adjoining mines of Snailbeach and Tankerville unless we do spend money, and go after the rich lodes. It is the recommendation of all that we should do it. Some of the most experienced mining people in the district, captains of mines, and others, have expressed over and over again this confident belief that the company cannot fail to become a great success, if it will but do what the other important mines have done—go dow to the rich lodes. Now, gentlemen, you will hear from General Chesney, and others who have been over every part of the mine, thoroughly and closely scrutinising it, with the view it may be to find out its weak points as much as its strength, that they entertain a similar conviction; but, like myself and your directors generally, it is firmly impressed upon their minds that the one thing above all others which we now have to do in the interests of the shareholders is to lose not a moment in sinking this new shaft. The outlay, as the report has stated, is estimated from first to last, together with the cost of thoroughly developing the property by driving in all directions after some 60 or 70 fathoms have been sunk, and ultimately a greater depth, is not considered likely to amount to 10,000*l*; but to be on the safe side that sum has been named; it is, however, amply sufficient. The upper workings are in all respects in good order, although it must be confessed greater results were hoped for in the 70 when the water was unforked than have been experienced. Still, considering they are but comparatively shallow workings, I cannot say we had a right to look for greater results; but Captain Ridge's estimate of the ore ground existing there naturally raised our expectations somewhat, not, I confess, since fully realised. The directors, however, contemplate, during the sinking of the new shaft, to continue the upper work to tribute. This "no cure no pay" principle cannot, therefore, harm the company, if unproductive of important results. You will observe that the directors propose for your consideration the creation of 10,000*l*. of debentures. The interest will be 8 per cent, and they will be issued preferentially to the members and then to the public at the price of 18*l*. The drawings will be half-yearly, and in five years the whole amount will be paid off at par. The whole of the property and assets being security for these debentures, there can be no question of its sufficiency; the directors, therefore, cordially recommend them. Bearing in mind my remark as to brevity, I think I have nothing more to add; but in proposing the report for your adoption, if I have omitted information which would be desired by any present, I shall be most happy to answer any questions that may be put.

General CHESNEY: I have much pleasure in seconding the report, and in stating that the character of this mine for productiveness is well established in the district. The universal advice of those who have been consulted in the matter is to go down deeper, in order to develope its resources. For this a further expenditure of capital is necessary. This is hoped to be subscribed by the shareholders and their friends, and in view of this expectation being realised it has been determined to sink a shaft at a lower depth. The selection of the proper place to commence has naturally been a matter for the anxious consideration of the board; and the opinion of Capt. Waters, of the Tankerville Mine, has been required on the subject, and writes under date, "Minsterley, June 21.—I have read your report on Perkins Beach in the *Mining Journal* of the 16th inst., and quite agree to all you say as to sinking a new shaft on the great spar lode at about 16 or 20 fms. from the mouth of the deep adit level. All the other veins I believe form junction with the said lode, and as the runs of lead all dip towards the valley your shaft would be in the right place to intersect them in depth.—ARTHUR WATERS." The history of the adjacent mines which have yielded such large returns of lead ore is invariably that they increased in richness as the greater depths were attained, at least such is the information that has always been given by those who are acquainted with them. Tankerville, which adjoins the Perkins Beach, began to pay very good returns at 50 fathoms below the base of the hill, and improved in value as further depth was attained. The mine, with the value of which you are doubtless all acquainted, is now down 192 fathoms, or thereabouts. In conclusion of these few remarks, it may be mentioned that Capt. Waters's opinion exactly coincides with that of our own worthy Capt. Ridge, whose long experience in the operations carried on in that lead-producing locality makes any suggestion for the proper working of the property receive every consideration at the hands of the directors. Your approval of the steps taken by the directors is, therefore, confidently expected.

Mr. INGRAM: What is the engine-power upon the mine?——Gen. CHESNEY: We have four engines—one of between 15 and 20 horse power, another of 12, a tubular engine just raised from the lower workings, and which it is proposed shall be employed for a time at the new shaft.

A SHAREHOLDER: Will an engine of that power be sufficient for the new shaft?

General CHESNEY: It will be sufficient for the first 40 fms., then the present main engine will be placed permanently at the mouth of the shaft, and no further power will be needed for the 65 fms. which it is intended to sink.

Mr. OLDHAM: I presume, Mr. Chairman, that the debentures which it is proposed to create will be first offered to the present shareholders?——The CHAIRMAN: Certainly. They will be offered to the members, and such as are not thus taken will be publicly issued.

Mr. MAYHEW: May I ask how many shares have been allotted?——The CHAIRMAN: To the present date there have been 10,622 allotted.

Mr. MAYHEW: There can be no question that with some 10,000*l*. spent upon it the Perkins Beach should be a first class mine. I have heard persons of much experience connected with mines express that opinion over and over again, and I can see no reason whatever why it should not in all respects equal its neighbours when sufficient capital has been laid out upon it.

The CHAIRMAN: There can be no difference of opinion upon that point, and the directors entertain little doubt as to the future, with, of course, sufficient capital to do justice to the mine.

Mr MAYHEW: I believe the directors will have no difficulty in placing the debentures. I am told that there is more life in mining matters than there was, and that the public, smarting under losses from foreign securities, is beginning to look upon sound mining properties and home securities generally as worthy their attention.——Mr. CODD: I can fully endorse all that has been said. I personally visited the mine, going over the lower workings, and the course now adopted of sinking the new shaft will, I believe, to use the words of our energetic captain, prove the "salvation" of the property, that is, as I understand him, unless nature should play some prank we are pretty sure of a prize in the future.

Mr. PRESTON: I regret that Capt. Ridge is not here to express personally his feelings in regard to the mine, but this being the day on which the shaft has been commenced he has not found it practicable to be absent from the mine. I can assure you, however, that he has unbounded faith in it.

The CHAIRMAN: Well, gentlemen, the report having been proposed and seconded, and no other question being asked, I will request those who are in favour of its adoption to be so good as to hold up their hands. It is carried unanimously. I will now move as to the debentures the following resolution, merely remarking that we fully believe they will prove a satisfactory and remunerative investment to those who may take them:—"That the directors be, and they are hereby, authorised, to raise the sum of 10,000*l*. by the issue of 500 debentures of the company of 20*l*. each, bearing interest at the rate of 8*l*. per cent. per annum, redeemable in five years by half yearly drawings, the price of issue being 18*l*., and such debentures to be a charge upon the whole property and effects of the company, subject to an existing mortgage to the vendor."

Mr. SHARLAND: I shall be happy to second that resolution.

The same having been carried, the CHAIRMAN said: I now have the pleasure to propose "That the election of Mr. Thomas Saunders, J.P., as a director be confirmed."——Mr. INGRAM: I beg to second it.——Carried unanimously.

Mr. MAYHEW: I should just like to ask the question Mr. Chairman if there is a seat at the board vacant. If so, I would with your permission propose a client, whose name and influence would probably be of advantage to the company.——The CHAIRMAN: The directors would be happy to see such an addition to the board, but I must mention that the expected qualification of a director is now 200 shares instead of as formerly 100. That, gentlemen, concludes the business of the day.

Mr. PRESTON: Before we separate I have the pleasure to propose a cordial vote of thanks to our Chairman: we have in him and his co directors most watchful guardians of our interests, and for his courteous and business-like conduct in the chair this day, I am sure you will agree with me that he is entitled to our best thanks.——Mr. OLDHAM: I have very much pleasure in seconding it.

Mr. PRESTON: Those who are in favour of this vote will please to signify the same in the usual way by holding up their hands.——Carried unanimously.

The CHAIRMAN: Gentlemen, I am extremely obliged to you for this compliment. I can assure you that no effort will be wanting on my own part and the part of my co-directors to make this company a great success, and we hope when we have the pleasure of meeting you again we shall be far on the road towards it.

The meeting then separated.

## WHEAL OWLES.

WHEAL OWLES.—At a meeting of adventurers, held at the mine, on June 29, the accounts showed a debit balance of 23,12*l*. 9s. 8d. A call of 25*l* per share was made.—Work performed during the 16 weeks: 132 fms. 5 ft. 3 in. driven in levels, and 72 fms. 4 ft. sunk in shafts and winzes; 35 pares stoping for tin on tutwork; 12 pitches working on tribute. Mr. R. Boyns, the purser, says—"We have made a heavy call to day, seeing our stock of tin is, reckoning at the present market quotation, considerably reduced in value. I sincerely trust that it will turn out only a provisional call, and that a good rise in the price of tin, and some improvement in the mine as well, will render the payment, when due on Sept. 29, unnecessary, which I shall only be too glad to notify to the adventurers. The mine is in thorough working order, and every item charged up."

[For remainder of Meetings see to-day's Journal.]

HUNTER CONSOLIDATED MINING COMPANY.—Mr. O. H. Smith returned last evening from a brief visit to Hunter district. We gather from him some facts of interest. A new town is rapidly growing up, there being already about 30 houses ready for occupation. Some of the buildings, moved from Cherry Creek and Schellburn, are both large and substantial. The town of Hunter is situated in the Egan range of mountains, about 20 miles south of Egan canyon. The principal operations in the way of mining are being carried on by the company, which represent a consolidation of three or four mines. A furnace, capable of smelting 40 tons per day, is being brought from Salt Lake, and will soon be in full blast. The deepest shaft in the district is about 150 ft., at the bottom of which a 2-ft. ledge of grey carbonate ore, assaying on an average $200 to the ton, has been developed. The company employ about 25 men, and there are in addition to these 30 or 40 more in the camp, making a total population of between 50 and 70. There are two families in Hunter Mr Smith thinks the camp will be permanent and prosperous, though never very large. The chief trouble is that the company has gobbled up everything in sight, the company claims all the water and timber, and pretty much all of the mines —*White Pine News*, June 9.

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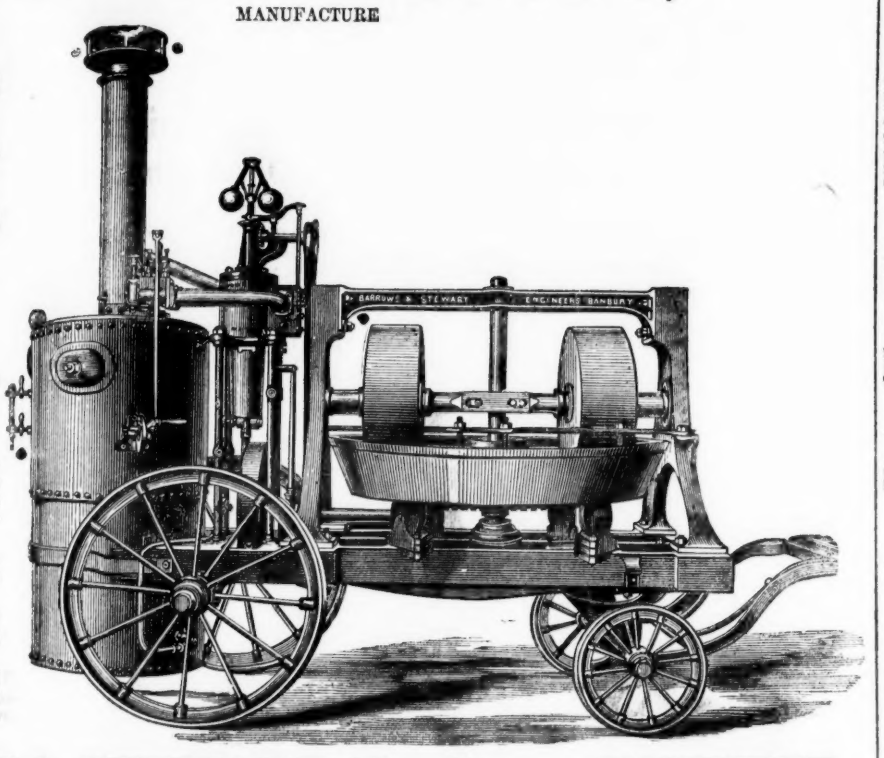


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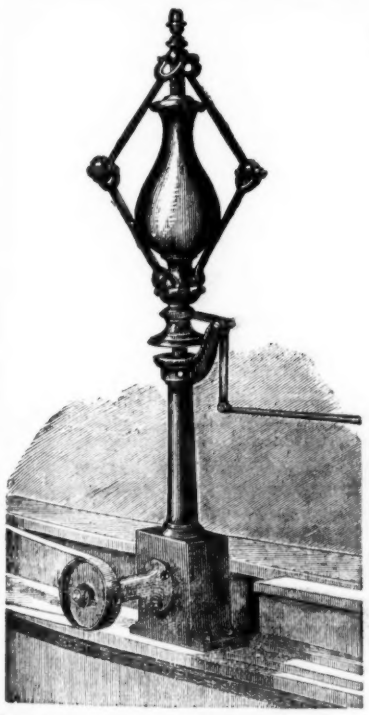

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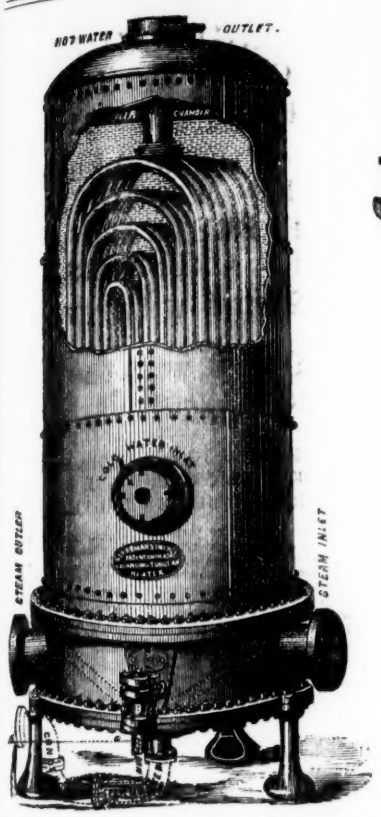


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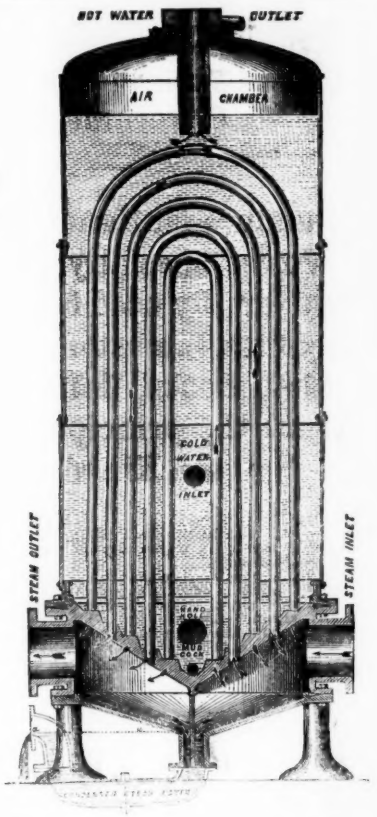


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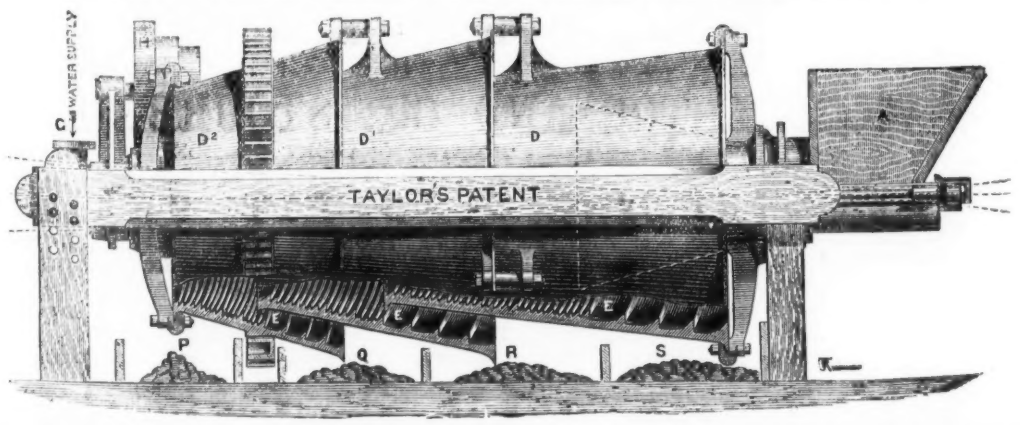


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FOR SEPARATING AND SIZING MINERAL AND OTHER SUBSTANCES.

By the aid of this invention any materials, which are of different specific gravity, can be concentrated and sorted mechanically; while in the case of ores the fine mineral is brought up with the larger particles instead of being washed into the waste—a most important feature.

This machine uses very little water in proportion to the quantity of material treated, and will be found a most useful and efficient dressing apparatus.

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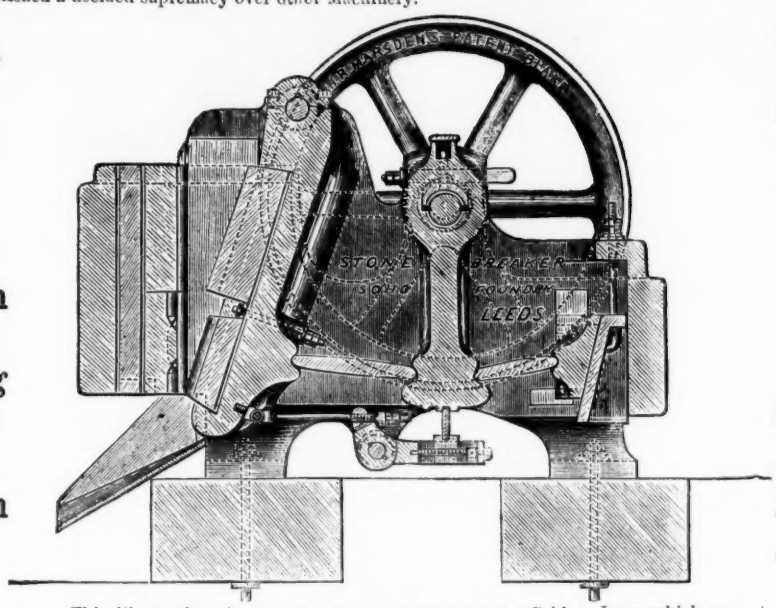


**H. R. Marsden will exhibit in full operation, at the ROYAL AGRICULTURAL SOCIETY'S SHOW, LIVERPOOL, JULY 11 TO 16,**

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